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Public Safety.—Three Recent Calamities.

FATAL casualties, three in number, each tending to open a new chapter of alarm and terror, have recently attracted public attention. It is becoming more and more evident that the inquisition of a coroner,—a wise and enlightened safeguard to public safety when a bludgeon or a hammer was the most likely instrument for the sudden termination of life,—is but ill fitted to cope with those profound and delicate questions which the advance of modern science suggests on occasions such as those of the explosion on board the *Thunderer*, the Radstock collision, or the leap into space made by the "Flying Dutchman." It is the more necessary that whatever we know of the result of experience, or the habit of profound investigation into mechanical cause and effect, should be taxed in order to throw light on incidents so menacing to our tranquillity.

With regard to the collisions by land, they are unfortunately not altogether without precedent. They are cases of what are called railway accident; but they are chiefly to be regarded as they affect, on the one hand, the public who travel by rail, and, on the other hand, the railway companies, on whom so heavy a cost is entailed by any failure in their working arrangements. As far as the officers and servants of the railway companies are concerned, it cannot be said that any new cause for personal alarm has been displayed by either of the two disasters in question. With regard to the explosion on board the *Thunderer*, the case is in some degree different. The public were not the immediate sufferers. The marvellous transformation which our war navy is undergoing has turned what used to be the hold of a ship into a floating engine-room. Numerous and complicated machines, fed by an adequate number of boilers, consuming large quantities of coal, and evolving an enormous pressure of steam, are set afloat and propelled through the sea at a high velocity. When a new and costly apparatus of this nature comes to so fearful a breakdown on its first essay, there is no small danger that the crew may be discouraged. The question is natural, in default of competent knowledge,—Has the fact that the engine-room is afloat, instead of being on dry land, anything to do with an explosion so unprecedented? If not, is there such careless neglect and want of due knowledge and care on the part of the naval authorities, or those whom they employ, that no one is safe on board a Government steamer? We do not state, as a fact, that such questions have been raised. On the other hand, nothing can be more likely,—or, we may say, to a certain extent, more proper,—than that such should be the case; and if the men who form the class from which the engineers and stokers of our war and mercantile marine are selected do not put these questions, or do not even anticipate that they may be put, none the less is it the duty of those who in any way represent or care for the interests of this very important class of English workmen to see that no doubt is left on the points in question.

With reference to the Ashton catastrophe, the verdict of the coroner's jury is such as to impose but little reserve on a full discussion of the case. The main point to be kept in view is the prevention of the recurrence of a like disaster. It is difficult to see how this is assured, or even promised, by anything which has occurred on, or since, the inquest. The great question of the proportion of the maximum velocity that can be safely introduced on a railway to the structure of the line has not been adequately brought into view. It is of primary importance that this should be done. The velocity of the "Flying Dutchman" train was a broad-gauge velocity. The broad-gauge railway, as conceived and carried into effect by Mr. Brunel, was a mechanical contrivance differing in many important respects from the narrow-gauge railway, as designed and carried out by Messrs. Stephenson, especially by Mr. Robert Stephenson. Of the minute care, constant attention, and unstinted cost, both of time and money, that were devoted by Mr. Brunel to the perfection of his line, no one who had not the experience of working under his eye can form any conception. It was not the idea of the engineer of the Great Western that a railway could be made haphazard, and entrusted to the care of inspectors, insufficiently supplied with labour and materials, while engines and trains, controlled by some one else, were driven over them at a speed fixed by the superintendent of the line. On the contrary, the way and the locomotive were constructed by Mr. Brunel as corresponding parts of one great system, the object of which was to ensure the safety of a high speed of transit such as no careful man would attempt to rival on a less aptly constructed line. The gauge or width between the rails originally adopted by Mr. Stephenson was increased by one half by Mr. Brunel. By this means greater space was given for all the working parts of the engine, and the centre of gravity was kept proportionately low. But this was only part of the design. The permanent way was constructed on a totally new system. On the London and Birmingham line stone blocks, which were regarded as permanent fixtures, were provided for the cuttings, and wooden sleepers were laid on the embankments, with the view of being replaced by blocks as the earthwork became consolidated, and as the sleepers wore out or decayed. It proved that the blocks were so rough and so liable to displacement, that sleepers were afterwards introduced everywhere, as permanent fixtures of the line. On the other hand, the original design of Mr. Brunel was to construct a solid timber framework, secured to piles driven into the bed of the railway, on which rails of the well-known Great Western section were bolted down, packing-pieces of hard wood being inserted between the longitudinal beam and the rail. This plan proved not more practically successful than the blocks of the London and Birmingham, as each pile was felt as a point of resistance on the passage of the train. Mr. Brunel therefore substituted heavier longitudinal timbers, framed together with transoms, to which the rails were bolted by the very admirable mechanical contrivance of the fang-bolt, and the way depended principally on its own weight for being kept in position. The sleepers, on the narrow-gauge lines, were embedded in the gravel, or in what was called the ballast, spread over the level bed of the railway. In the broad-gauge system the longitudinals were only slightly embedded in the ballast—the drainage of this part of the work receiving the most careful attention. Thus, a portion of broad-gauge railway, in order to obtain the certificate of Mr. Brunel, had to be as accurate and almost as stable as a lathe-bed. It was maintained in a perfect state by the most unsleeping watchfulness, and allowed of the passage of a locomotive, constructed with the like originality, and the like adaptation of each part to a general purpose, at the rate of seventy miles an hour, where the way was straight and level, with perfect steadiness and safety. Where a curve occurred, the centrifugal force which tends to throw the train off the rails was counteracted by raising the outer rail according to a table of curves and cants suited to the speed which the engine-driver was directed to maintain over that portion of the line; and not left to the mere whim of a common ganger, but carefully levelled by the sub-engineer.

When this careful practical preparation for maintaining a high rate of velocity was first carried into execution, the London and Birmingham Railway Company was building four-wheeled engines, which, at any excessive speed, had a tendency to leap from the rails. The desire to rival the broad-gauge speed led to the invention of Stephenson's and Crampton's six-wheeled engines with very long bodies, by means of which evaporative surface was increased, and a supply of steam was produced adequate to a more rapid velocity than was attainable by the original four-wheeled locomotive. But the corresponding alterations of the way were confined to the adoption of heavier rails and fittings. The original rough outline of the old tramways was materially improved upon; but its essential principle was unchanged. The best and most costly narrow-gauge line was never to be compared, as a mechanical arrangement for facilitating extreme speed, with the broad-gauge line, as Mr. Brunel not only designed it, but took good care that it should be carried out and carefully maintained.

It is now seventeen years since the death of Mr. Brunel. Mr. Stephenson was not very long his survivor. Those men who have the highest claim to be considered the followers of these great engineers will be the first to admit that they follow at but a humble distance; and one proof that this is the case is to be found on every occasion when what is erroneously called accident sets in movement the extremely clumsy machinery of the coroner's inquest. Agents, and inspectors, and station-masters and signal-men there are in abundance, and engineers who declare that they are not responsible for an under-supply of men and materials during the critical operation of laying a third rail; but the firm, intelligent control of the engineer-in-chief, responsible for the making, the maintaining, and the working of the line, is nowhere apparent. This is an unwise economy on the part of the company, and the result, at least one result, is here before us.

It is useless to say a word that would tend to reopen the gauge controversy, which is now settled, not as matter of engineering, but as matter of fact; but it is evident that when a third rail is introduced into the broad-gauge system, however this is effected, the original conditions of the way, on which safety at high velocity was made dependent, are materially affected. The whole structure of the permanent way has been, not only altered, but patched, and the mechanical disadvantage of throwing double weight on one rail, and thus requiring a still more careful inspection and maintenance of the line, has been coupled with the economical disadvantage of a stinted supply of labour and of materials. The only wonder, then, is, that disaster such as that we now witness has not occurred long before.

The first lesson to be drawn from this short summary of a long experience is, that to attempt to maintain the speed for which Mr. Brunel constructed his way, as well as his engines, without carefully maintaining the excellence of both of these elements, is not only foolish but mischievous. It will be stopped, sooner or later, if in no other way, by public indignation, or by the recurrence of repeated calamities. To drive a train as fast as it can be driven, in order to compete with another line of route, is all very well from the point of view of the old coaching masters. Such was the case with the stages on many a well-remembered line of country. But in these cases the speed was limited by the actual physical endurance of the horse. Some sixteen miles an hour was the utmost speed attained by the competing coaches, and that only in rare and favourable cases. That the way should be, both in its original design and construction, and as matter of maintenance,—more especially if any material interference with the original design has been introduced,—suitable for a given velocity, is a primary requisite of safety. It is not too much to say that it does not appear to have been so regarded in the present case. The original transoms, we are told by a railway official, "had to be cut, for the 4 ft. 8½ in. road, and new short ones inserted between that and the 7-ft. road. The fastenings, instead of being fang-bolts going through the balks of timber, appear to have been simply spikes driven into them. With one part of the road old, the other part new, the original transoms all being severed, and the reframing of the timber holding the mixed gauge together,"—what was the chance of the safety of a train of 300 tons weight driven at sixty miles an hour? We think that the question should not have been left to the solution of chance. But to that solution it is still left, so long as such a speed is maintained on such a road.

With regard to the Radstock collision, the partition of blame is a matter into which we do not propose to enter, except in one particular. There is a known and frequently used method of working a line which renders such an accident physically impossible. Why was not that method employed? It is all very well to talk of the block system, and an admirable system, when properly worked, it is. But in the case of a heavy traffic, complicated by special trains, it is evident that the degree of telegraphic correspondence which is forced on so many officers,—to say nothing of the new functions of a crossing agent,—is such as to test the energies of more educated and more highly paid men than those to whom this important duty is entrusted. As to all that, however, it is needless now to speak. Whether the crossing agent can be electrically omnipresent or no, the key to safety should not be neglected. That key resides in what is called the staff system. In lines where this is faithfully carried out, the collision of an up and down train on one line of rails is absolutely impossible. A staff or ensign of some kind is delivered to the driver of an engine over the portion of single line between two crossings, which are also stopping-places. Without this staff in his possession, no engine-man is allowed to take his engine on this section of the line. There is only one staff. There can, therefore, be only one engine on the line of rails. By equal consequence there can be no collision. The certitude is absolute, logical, and indisputable.

One objection,—and, so far as we can see, but one,—can apply to the staff system. It may be urged that it involves a loss of time. If a train goes from A to B, no train can follow it until a train, or, at all events, an engine, has run back from B to A, because, when the second train reached A, there would be no staff for the station-master to give to the driver. Therefore the second train must wait, and loss of time will ensue. But the reply to this objection is perfectly obvious. If the traffic be too heavy, the line should be doubled. The question lies between the establishment of a rule that will absolutely prevent the occurrence of collision and the arrangement of the time-tables. Can it be doubted that it is the latter which should give way, and that public safety should be preferred to the saving of so many minutes in the travelling arrangements of the company?

With regard to the explosion on board the *Thunderer*, we shall endanger no interests, and wound no susceptibilities, in saying that it has become clear, from indubitable scientific investigation, that the very accuracy and excellence now attained by our lathes involves a hitherto unexpected danger. It is, so far as we are aware, a new observation that plates of metal when heated in contact seem to acquire an adhesive tendency by such heating. Such a fact, however, is by no means inconsistent with what is known as to the adhesion of polished surfaces. Not only so, but we think it admits of explanation. In the gradual rise of temperature, the particles of air lying between such surface, as between those of a highly finished valve and its seat, are likely to escape. Thus a more perfect contact is insensibly produced, and there seems to be little doubt that it may become a contact of so intimate a nature as to introduce that degree of attraction which is known to exist between homogeneous particles at extremely minute distances apart, and which approaches much more nearly to the mutual relation of the particles of the same body than to the ordinary attraction between two separate bodies. Something of this nature would account for the fact, of which distinct testimony has been offered, that a valve very tightly fitted to its seat may develop an adhesion altogether unexpected. If it were a mere case of tightness so great that while there was enough play when the metal was cold, there would be absolute wedging when heated, this would be perfectly intelligible. But it seems to be probable that there may be something more than this—that a valve which, if dropped into its seat when steam is up, would act properly, may refuse so to act if heated *in its seat*. That is a matter of great interest, and will have to be fully tested and brought into our every-day practice. There seems to be no doubt of the excellence of the materials and workmanship in the fittings of the *Thunderer*. There is no doubt that nothing like the hair-brained practice—which we have not only heard of but witnessed, in American engineers—of overweighting the safety-valve, is entirely out of the question in the case of the *Thunderer*. A scientific reason is offered, which seems in itself to be adequate; but as to the absolute truth of which we must reserve any opinion. Not so, however, as to the absence of any such blame as attributes to scamped workmanship, or palpable neglect.

There is, however, one general feature present in these three very different cases. It is a feature of our national character,—one in which there is a strong difference between our own habitual action, and that of foreign nations. If we were to call this feature recklessness we should be wrong; yet it has the effect of recklessness. If we should call it want of a sense of responsibility we should be wrong, and yet it does seem to consist in the absence of drilled, organised, inflexible responsibility. Thus, take the case of an engineer or stoker who is responsible for the safety of a steam boiler. The natural, and as far as we know the almost invariable habit of such a man, when he is getting up steam (especially in a boiler with which he is not familiar), is to try the action of the safety-valve when he has raised steam. Such a step is dictated by the most ordinary prudence. As the engineer or stoker would be the first person to suffer from an explosion, the public has so far a pledge that he will not neglect his duty, to the detriment of himself and his neighbours. But, on the other hand, in any public service such a thing should not be left to inference, to heart, or to confidence that a man will take due care. It should be an established part of a code of standing orders, and for obedience to such a code the whole hierarchy of the service should be responsible. The stoker should be directed, at certain stages of his work, to ascertain whether the guarantee of safety on which all depends was present,—in other words, whether the safety-valve was acting, or was ready to act. This is so essential a point that it can only have been omitted to be made a positive order from its implicit necessity, which was such as to lead people to take it for granted that it was done. But it has come out, not so distinctly on the trial as in the subsequent correspondence on the subject, that the safety-valves were so enclosed, in order to prevent the escape of steam into the stoke-hole, that the man in charge of the fire could not see whether they were acting. The whole theory lies in these words. Two safety-valves existed. Both of them stuck. The stop valve connecting the boiler with other boilers and their safety-valves was closed. These three stoppages of the steam were the direct causes of overpressure being obtained. The gauge intended to show the pressure was broken. Even yet there was required another hitch in the arrangements, and this was expressly provided by the disposal of the safety-valves in such a manner as to place their action out of the observation of the stoker. This must be regarded as a positive and very grave fault of construction, involving serious responsibility.

But the responsibility does not stop here. The duty of the chief engineer should involve the ascertaining whether all the items of the code of safety had been carried out. And so, in the case of a steamship, with the officer under whose orders the chief engineer is placed. At each step there should be plain, positive, adequate responsibility. It would not then be the case, in the event of disaster, that no one would be to blame. On the contrary, in such a case as we have put, no matter whether it were repair of line, obedience to signal, a testing of conditions of working safely, *everybody* concerned would be punished. If the code of working instructions were adequate,—as it ought to be made,—there would be a check at every step, so far as risk of human life was concerned. Mischief, or danger of mischief, would thus be detected at each step. In any case of failure on the part of a subordinate no harm would result unless the superior of that subordinate also failed in his distinct written duty. At each step penalty should be made the certain consequence of failure. And if the whole service were so heedless, so rash, or so stupid, as to neglect such a code, and consequently to cause disaster, no question as to division or shifting of responsibility could ensue. Each would, in his grade, be responsible; each would be blameable; each and all would accordingly be liable to be punished.

It can only be by the introduction of careful system; the reduction to writing of all rules; the inspection, by men of competent experience, of such rules, followed by the certifying (in good time to prevent mischief) that they are adequate to prevent all preventible danger; the rigid application of such rules, and the infliction of definite penalties for their neglect and infringement, that safety of human life can be guaranteed. How constantly do we see rules made only to be broken. How frequently is this the case, in almost every railway station, as to the one important safeguard of crossing the line of way. This is usually prohibited, on the proper ground that if no one is allowed to cross the rails no one can be run over by an engine; and yet, with what *sang froid* do we see, always the porters, and often the passengers, lounge across the rails just in advance of a train? Until we introduce an inflexible and well-ordered discipline into the great army of steam, we may expect results such as would occur in every military force if the duty of each officer were left vague on the general idea that as his own life was at stake he would be sure, under any possible circumstances, to act for the best welfare of the army.

ART AND CIVILISATION.

THE writer of an interesting article in the current number of the *Edinburgh Review*, on "The Letters and Works of Michelangelo" (chiefly *apropos* of Mr. Heath Wilson's work, to which we devoted considerable space a little while since) prefaces his analysis of the subject by some remarks on art and civilisation, which, though not advancing anything new, touch upon the relation of art to national life and morality from a point of view which it is well to be reminded of, and which none who are concerned with art can afford to overlook. When we say the relation between art and national morality, we should, perhaps, more correctly say the want of relation, for that is the point brought out by our contemporary. A great deal has been said by modern critics (pre-eminently by Mr. Ruskin, for instance) in favour of the connexion between good art and good morality, and sometimes, though less positively, between high art and high civilisation. The theory is one which is pleasant both in a moral and in a logical point of view. It is gratifying to think that what we admire in art as a source of intellectual pleasure should also be connected with, and in a measure spring from, the highest moral feeling, and there is a logical completeness and unity in this view of all good things as necessarily linked together, which is at the same time satisfying to the intellect. This agreeable view of the matter the *Edinburgh* reviewer attacks in a few pithy sentences, and with a "damnable iteration" of historical facts in contradiction of it, in a rather cruel manner. It is well, however, that we should be invited to turn round and look at the truth about these questions now and then; and the somewhat positive manner in which the writer in question puts the case provokes, on the other hand, the question how far he himself is in the right, and whether his deductions are not a little too sweeping.

The question really has two sides, according to the meaning we attach to the rather vague term "Civilisation," which may either mean a general high standard of life and principle in everything, or it may mean merely a high degree of material luxury and comfort in the mode of living. In using the expression "*true* civilisation" ("the condition which gives birth to art is precisely that in which true civilisation has never yet flourished"), we presume the *Edinburgh* critic refers to the highest or moral civilisation.

Without undertaking to say that civilisation (in this sense) and art are incompatible, he brings together in one paragraph the most telling historical confirmations of such a view. "Art, respectively Ancient and Modern, never attained such perfection as under an elaborately-organised idolatry and a sumptuously-supported superstition." And carrying the question further into the condition of public morality in the great days of Italian art, our intention is invited to the fact that:—

"While the artists of Italy were advancing with sure and rapid steps to those heights where Michelangelo stands pre-eminent, the country to which such men were born was hastening to a condition farthest removed from real civilisation. The very dates of Italy's proudest achievements in the art of painting are identical with those of the foulest iniquities in her high places, and of the deepest misery of her people. The "Last Supper" by Leonardo da Vinci was being executed at the time when the traitor Sforza invited a French army across the Alps, and when a Borgia represented Christ upon earth. Michelangelo's Sistine ceiling was commenced in the same year with that first transaction of European diplomacy, the League of Cambray, an alliance unmatched in history for rapacity, cruelty, and perfidy, and the signal for a ten years' reign of devastation and carnage. Raffaelle's most creative years were contemporary with the period when two foreign armies vied with each other in ravaging the Peninsula—the sublime decorations of the Vatican coincident with the worst passions and blackest deeds that ever laid a great people in the dust."

Here be truths, no doubt; and not new ones, of course, to any educated readers. And, unquestionably, such instances do seem to put an absolute stopper upon all the well-meant platitudes one often hears about the connexion between art and moral elevation of character. And yet it would be a mistake to make too sweeping a deduction from such a category of contrasts; and the manner in which they are brought forward and marshalled by the reviewer is calculated to create a false impression that times of social and political licence are especially favourable to art. It would be quite open, however, to those who believe in the essential purity of art, to say that these facts merely proved that art was perfectly separate from and unaffected by the social and political circumstances of the day. And in regard to the other influences of idolatry and superstition just before referred to, the writer does point out (what people are now beginning to see) that the Greek Pantheon and the Romish ceremonial had nothing to do, as used often to be supposed, with calling into existence artistic power; all that can be said in regard to those influences is that, "when once the sacred spark has been kindled, the lowest worship and the most worldly aims can fan the flame,—they can do no more." And this idea that art, however connected with the personal character of the artist, is entirely above and unconnected with the social and national morality of his day, could hardly have a stronger support than is afforded by the life and character of the man whose biography gave rise to the remarks above quoted. It is scarcely possible to deny that the superior greatness, and we might say moral grandeur of Michelangelo's art, arises in part from the entire superiority of his life and character and principles over those generally prevalent in his day. If this moral superiority did not in any way develop or occasion his artistic power, it at least operated in leading him towards the lofty path, the search after the highest and noblest ideal, which pre-eminently distinguishes his work from that of even the greatest of his contemporaries.

Our friend of the *Edinburgh*, however, really hits the point, as it seems to us, in his remark, in explanation of the supposed antagonism of art and civilisation, that "Art is the heritage of the *natural man*," quite irrespective of his creed, social, political, or religious. But this explanation of the dilemma is merely hinted at in passing, without being applied further. The real application of it, and the real explanation of the development of artistic creative power simultaneously with the political excesses and crimes referred to, is, that both are the offspring of a time when the minds and passions of men are strongly aroused, and in a state of excitement which leads them to break through the ordinary routine of action and sensation, and impels them to mental activity and restlessness, which may find vent,—with one in new artistic aspirations, with another in new political efforts. Either of these may or may not be praiseworthy from a moral point of view; for it is possible for art to show great power and yet to be very immoral and very cruel in its tendencies. But in either case it is the intellectual activity, not the morality or immorality, which is the essential condition; only as the state of intellectual activity really includes the fuller development than usual of the "natural man," to quote the expression before used, it is quite possible, and even in the nature of things probable, that the natural man may not always "do his spiriting gently," and that some of the superfluous energy aroused may expend itself in a very violent manner, and in a direction which may justly be said to be opposed to "true civilisation." We have the same kind of phenomenon in connexion with other branches of imaginative creation. The great new impulse in English poetry and imaginative literature, which was coincident with the French revolution period, for instance, is recognised now as only a part of the same movement of the European mind which brought about the revolution,—the determination to break old barriers and find fresh openings for human energy and activity in every form. Here, again, the political activity which accompanied the creative activity of the period, was characterised by much violence and immorality. We have, however, a brighter example in the history of the one art which has been pre-eminently developed in this country. The Elizabethan drama is to England what the Renaissance painting is to Italy; and this time of splendid creation in our drama was also a time when the energy of the nation in other directions was at its highest point; when everything was, as it were, alive and stirring, and the strongest passions expressed in the drama were only a reflexion or a parallel development of those which were finding vent in other ways in the great conflict against the Spanish and the Papal aggressions. This we take to be the true explanation of the apparent paradox which the *Edinburgh* reviewer calls attention to, of the frequent co-existence of artistic activity with periods of violence and turmoil. The conditions of creative energy in art demand that the minds of men should be in a state of activity and restlessness rather than of quiescence; and this same restlessness and desire of change exhibits itself, often simultaneously, in other channels; with less beneficent results, it may be; or sometimes, on the other hand, with even higher results than art *per se* can lead to. The aspiration for political power and liberty among the Greeks was much more closely connected with their artistic supremacy than was the accidental fact of their having a Pantheon of deities to furnish subjects for their art. The same national energy and desire of supremacy gave birth to both their political and artistic strivings. A period of quiescence is favourable only to the *study* of art; it is the period of Academies; but a period of restlessness, ambition, and intellectual tension is the period of artistic creation; and our own quiescence and want of enterprise for some time past may go far to account for the fact that our art is at present a toy for dilettantism rather than an expression of national feeling in any way worth speaking of.

If we look at the question for a moment in regard to a narrower meaning of the word "civilisation," and take this only in its material sense as referring to the mode of life and the provisions for securing comfort in its conditions and surroundings, we may, however, recognise a distinct antagonism between art and civilisation. Art being, to repeat the phrase once more, "the heritage of the natural man," it is only in accordance with this theory that when social luxury and social formulas have paramount influence in determining the manner of men's lives, and even the modes of their thought, the free and unconstrained development of art in its nobler forms should be checked and stunted in so uncongenial an atmosphere. Art must have free space in which to use its wings, and cannot endure to be hemmed in by the barriers of an intricate social conventionality. With the Germans, lyric drama, for instance, is a living and important art, because in their less artificial scheme of life it is cared for for its own sake; with us it is a mere toy, forming part of a conventional system of the movements of society. Other parallels will present themselves, and in such a sense it is that civilisation is really and directly at variance with art, in substituting transitory and conventional interests for the broader genuine sympathies of human nature, to which alone all true art appeals, and by which it must ultimately be judged.

THE NEW "BOULEVARD HENRI IV." AT PARIS.

DISAPPEARANCE OF THE OLD CITY.

SIR SALAR JUNG, on passing through Paris on his return to Hyderabad, remarked, so the correspondent of the *Times* informs us, that he was much struck with the severe aspect and the incessant activity of London, which had left in his mind the recollection of the capital of a people with a steady destiny, while Paris seemed to him to have been created for pleasure, rather than for enduring any serious enterprises. It is gratifying to find our Indian friend appreciating the capital of his Empress so favourably.

With regard to Paris being a city of pleasure, the remark is somewhat trite, and has no sting for the Parisians, who are perfectly willing that the whole world should regard their city from that point of view; but that Paris undertakes nothing enduring or serious is far from the fact. Indeed, it may be said that no city in the world, not excepting London, is at present elaborating more serious or weighty enterprises.

As to the enduring character of what meets the eye in comparison with London, surely the beauty of the stone, which is almost plastic under the workman's hand, and the careful finish manifested throughout all that they are now doing, must compare favourably on the score of durability with our best work in England; and indeed Time, or a miserable Communist rule, would find it difficult to destroy M. Garnier's New Opera House, or a thoroughfare like the Boulevard Haussmann.

Even where old Paris has to give way, as it is now daily doing, to the new Paris, which is rising above and by the side of it, we find traces of the old asserting its durability.

In the Boulevard Henry IV., still new, although it was commenced in 1868, the demolition of a portion of one of the oldest and most interesting streets of Paris is just now taking place, and at the moment of this writing the

old Hôtel de Lesdiguières is being destroyed. Still, with its workmen busy at its destruction, it exhibits from almost any point a characteristic appearance, and especially from the corner where, before the Communist days, stood the old Arsenal. The view makes one regret very deeply that so interesting an object should have to give way.

The destruction about to take place in order to complete the line of the Boulevard Henri IV. cuts diagonally through half the Rue de la Cerisaie.

This street, which has lately been described as one of the oldest in Paris, is certainly one of the most interesting, though not by any means one of the oldest. It is not marked in the *Plan de la Tapisserie, fac-similed* by Mauperché at the beginning of this century. In fact, the place as a street did not exist till 1516, when Francis I. sold the Hôtel St. Paul, which Charles the Dauphin, Regent of France, afterwards fifth of that name, had caused to be built. The ground on which this famous residence was to rise, which took its name from the neighbouring church of St. Paul, was occupied at the time by a number of private residences, bought by Charles in 1361, at the time that King John II. was a prisoner in England, having been made captive at the fatal battle of Poitiers (1357). At his death, the new king united the property to the crown domains, and designed it in the edict under the title of "Solemn Hôtel of Great Diversions" (*Hôtel Solennel des grands Esbattemens*). It was not long after this that the Hôtel de Sens (1365), St. Maur and Puteymuce (1398) were taken into the building. It was in that portion where had formerly stood the Hôtel de Sens that the king's apartments were placed, while that occupied by the Hôtel St. Maur was inhabited by the Dauphin Charles, and Louis, Duke of Orleans. As is to be expected in so large a mansion, extending as it did from the Rue St. Antoine down to the banks of the Seine, there was a large garden, amply filled with vines, cherry, pear, and apple-trees, in the midst of which grew lavender, rosemary, and other herbs and plants. Nor was this all, for there was also a menagerie, where, with a royal love of rarity, lions and wild boars were kept. The spot where this stood is still marked by a street bearing the name of Rue des Lions. As to the garden, the street which is the subject of this article, the Rue de la Cerisaie, can without doubt be said to have got its name from the alley of cherry-trees which there existed.

The successors of Charles VI., however, abandoned the Hôtel de St. Paul, to dwell at that of the Tournelles; and about the year 1516 Francis I. sold a portion of the property to one Jacques Genouillac, grand master of the artillery. It was not, however, until 1551 that the rest of the property was sold to various private individuals, who soon commenced to pierce and build a number of streets, many of which took their names from parts of the now ancient Hôtel de St. Paul. For instance, as we have above mentioned, the Rue de la Cerisaie took its name from that part of the garden planted with cherry-trees; and the Rue de Beautreillis, so some say, from that part where the vine trellises were situated; while the corrupted name of the former Hôtel Puteymuce gave rise to the modern Rue du Petit Musc.

Thus we come to almost the year of the foundation of the present Rue de la Cerisaie, whose history, though the street was only then a *cul-de-sac*, commences at this point.

The first mansion that was built here was that of the financier, Sebastian Zamet, whom fortune having in every way favoured, found himself, at the accession of Henri Quatre, the distinguished favourite of that amorous monarch. With a tact which was natural in a court favourite, he proceeded to fit up his house in luxurious taste and elegance, suitable for the reception of his sovereign; in fact, we find Sauval speaking of his hôtel as the largest and most "*logeable*" in Paris. Here it was that Henri used to meet his beloved Gabrielle d'Estrées; and here were contrived entertainments which Paris, even then, was artful in getting up; Venetian and Milanese *chefs* emulating each other in promoting the voluptuous life that led to this mansion obtaining the name of the Palais d'Amour.

It was at this palace of love that, during the Lent of the year 1599, the beautiful Gabrielle d'Estrées, Duchesse de Beaufort, came to dwell, as the exactions of the court obliged her to absent herself; and here, we are told that, after having dined heartily on the Maunday Thursday, she assisted at the office of the *ténèbres* at the church of the Petit Saint Antoine; and having returned home, went to stroll in the extensive gardens of the Hôtel Zamet. It was then that, having eaten of a peach—some say an orange or other fruit—she was seized with the most dreadful pains, and, having declared that she had been poisoned, demanded that she should be taken away from the house. She was taken to the hôtel of the dean of St. Germain de l'Auxerrois, where, on Saturday, the beautiful Gabrielle breathed her last in the agonies of child-birth (1599).

Henri Quatre, however, did not abandon his visits to the Hôtel Zamet, sadly though they brought back the recollections of so many happy hours, and though the meetings were of a more serious character, especially after his marriage with Marie de Medicis (1600); he continued to come and see his old favourite until his death. Under the regency, though Zamet had died (1614), his children did the honours to the Queen-mother, until at length they consented to give up the house to Francis de Bonne, Duc de Lesdiguières (1543-1626), the last Constable of France. On the death of the Dowager Duchess of that name, the vast mansion, now the Hôtel de Lesdiguières, passed into the hands of the family of Villeroy, and it was in his second visit to Western Europe, when he came to Paris in 1717, that Peter the Great stayed at this mansion. Though some magnificent rooms had been prepared for his reception, that practical and far-seeing monarch preferred to live more at his ease, and accepted the Marshal de Villeroy's invitation to stay at his hôtel; though finding this too sumptuous, he was at least freer in his actions than at the Louvre.

A story is told connected with a matter of etiquette while on his stay here. The morrow of his arrival, May 8th, the regent, the Duke of Orleans, came to pay his homage to the Czar, and two days after this, Louis XV., now seven years old, came also. A question of precedence, however, arose on the occasion, which the ready wit of Peter solved in the following manner. Not wishing to allow Louis to precede him, and unwilling on his part to be the first to enter, the Czar took the boy in his arms, and having placed him on a seat at his right-hand side, he embraced him, and they both sat down together.

For more than a month the Czar remained in Paris, making a complete and searching examination of the capital, its men, its manners, its institutions. Before leaving, he was asked what he thought of Paris? He paused for some time, and replied, "If I were sovereign I should burn it."

In 1782 we find Jaillot, in his "Recherches Critiques sur la Ville de Paris," mentioning that "the hôtel was sold some years ago to a number of private individuals, who have pierced the Rue de Lesdiguières. The hôtel has been demolished, several houses having taken the place of it."

The block of sombre architecture, built about the latter part of the reign of Louis XV., and bearing the stamp of that period, was, however, soon neglected, and before the end of the century the tide of respectability had flowed on farther west, leaving the old place, with all its reminiscences of royalty and grandeur, to be occupied by a number of industrious manufacturers of chairs and kitchen utensils. It is this building which is now about to be pulled down, and ere long the picturesque roof line, the gables, the beautiful gate, and the square courtyard, will have disappeared under the ruthless blows of the pick and shovel.

On the same side of the street as the block of building just mentioned, at what was No. 22, lie the remains of a number of dwellings built on the site of the original house which the celebrated Philibert Delorme (1518-1577) constructed for himself. But the work of the distinguished artist had been sadly disfigured, and in vain one would have sought for the two elegant porticos with their arcades which he had erected on each side of the principal building; for the octagonal flags which paved the court; and the interior disposition of the rooms which he presided over with so much care. All this had given way to a number of ruinous dwellings, though to the careful observer a building retaining much of the style of the Renaissance, spared from the general destruction on account probably of its solidity, was discoverable. The architecture was more sober in its ornaments, less detailed, less tormented, so to speak, than most of the monuments of that epoch,—a fact which is easily explained by the end which the illustrious architect pursued. He wished a dwelling-house which should at the same time be agreeable and commodious,—a dwelling, in fact, which he did not wish should rival those royal buildings on which he had expended all the riches and luxury of art.

But before we leave the old street, let us mention the house now marked No. 13, which will not give way to the general demolition which is taking place all round it. It stands exactly opposite the site of the Hôtel de Lesdiguières, and is easily recognisable by the medallions and other remains of an older building, let into the walls of the more modern edifice. It is here, though some doubts have been suggested on the subject, that Titon de Tillet (1677-1762) lived, for we find Jaillot remarking in 1782 that "*vis-à-vis* the Hotel de Lesdiguières was the house of M. Titon de Tillet, who, in perpetuating by his Parnasse Français the memory of our most celebrated poets and musicians, has merited that his name should pass to posterity." This Parnasse Français, now at the Bibliothèque Nationale, at Paris, was a group in bronze, executed in 1718, by the orders of Titon de Tillet, representing the Mount Parnassus, at the summit of which was Louis XIV. in the figure of Apollo, while under him were three celebrated ladies of the period, typical of the graces, and under them again nine of the famous poets and musicians* of the day, representing the Muses.

This house of Titon de Tillet (with its exceedingly picturesque and well arranged *rez-de-chaussée*), together with some few others in the Rue de la Cerisaie, will long exist as a delightful contrast to, and within a few feet of, the new Boulevard Henri IV.

AN EXHIBITION FOR SOUTH AFRICA.

THE South African International and Intercolonial Exhibition will (says the *Manchester Courier*) be opened at Cape Town, on February 15th, 1877. The building will be in the gardens of the Masonic Lodge of the Goede Hoop, adjoining the House of Assembly. The land has been freely placed at the disposal of the committee by the ancient and wealthy Lodge of Freemasons to whom it belongs. The promoters of the Exhibition, merchants and members of the Legislative Assemblies, do not sin on the side of ambition on the programme they have put forth. No attempt is made to cause the Exhibition to be an art gathering. Utilitarian objects, and such as are usually sought in the infancy of a vigorous colonial community, are pursued. The Exhibition will include manufactures of all kinds, which are at present largely imported into the colonies from the several countries of Europe, and it will include the various kinds of material for manufacture which form the colonial produce. The sixth class is devoted to hardware, edge tools, cutlery, metal work of all the kinds known to Sheffield or Birmingham, such as nails and screws, knives and forks, bolts, locks, latches, hinges, pulleys, galvanised iron, hollow ware, tin ware, fireproof safes, doors, &c., telegraph and tram wires, bells, wire, and wirework. The tram wires are an article largely used in working the diamond mines. The seventh class comprehends all kinds of machinery except agricultural, — cranes and hoists, road-engines, weighing-machines, pumps, manufactured parts of buildings, as sash-blinds, mantels, bricks, tiles, cements, sanitary appliances, &c. Lightning conductors, which are extremely necessary in those colonies, and particularly in Natal, will be entered in this class. Gold and silver medals and diplomas of merit will be given to successful exhibitors.

Goods intended for the Exhibition should be shipped from London not later than the first week of December, 1876. Mr. Edmund Johnson is the Commissaire Délégué of the Exhibition in Europe, and the central European offices are at No. 3, Castle-street, Holborn.

The building is being prepared in this country of glass and iron, in the style of the 1851 Exhibition. With the materials will go out workmen to put them together, as the demand for labour in the colony for railways and agriculture leaves few hands to spare either for manufacture or construction.

Slates from America.—The *Mining Journal* understands that a cargo of slates has been sent from New York to Lowestoft. They are stated to be equal in quality and much cheaper than those brought from the Welsh quarries.

* Corneille (1606—1684), Molière (1622—1693), Racan (1589—1670), Segrais (1624—1701), Racine (1639—1699), La Fontaine (1621—1695), Chapelle (1626—1666), Boileau (1636—1711), and Lully (1633—1687).

THE ART VIEW OF ARCHÆOLOGY.

THE Tree of Knowledge of good and evil in things architectural, which, in early times, when it was fenced round and protected from the intrusion of the multitude, yielded such tempting and delicious fruit, has hardly of late years,—and after the removal of the fence,—produced results worthy of original promise and the current miracles of learning and investigation which are now performed under its extended branches. The prevailing rage to know everything concerning, not only the private life of distinguished contemporaries, but also that of their ancestors from the earliest period, is reflected in the sayings and doings of those large numbers of people, through the length and breadth of England, who, during the last few weeks, have been in pursuit of change, pleasure, health, and archæological knowledge, both historical and artistic. Let it not, however, be supposed that this is the beginning of an attempt to depreciate the value of such sayings and doings, or to ignore the great diligence, unbounded hospitality, and natural enthusiasm, which have characterised several recent excursions. But it is only right that the critics, who have looked on at a distance, should try to gauge results, or at least comment upon some of the suggestions, possibilities, and facts produced by the actors at any immediate scene of local excitement.

That "prejudice for antiquity," as it has been called, which more particularly distinguishes a portion of English society at the present day, is to be met with in most of the ancient writings; but, because undoubtedly our means are more ample, we go further than our ancestors, and illustrate by practice what they only advanced in theory. Indeed, the enormous sums that have been spent upon the "restoration" of large churches and cathedrals, sometimes situated in the heart of small towns of no commercial importance and of slight population, while the country around—sometimes a mining district—has been left without a sufficient number of clergymen to take charge of it, has been the cause of just dissatisfaction amongst many very good conservators. The inestimable example, however, which is set, often to a whole county, by a well-tended and well-preserved cathedral, must be patent to all, although the Bishop of Durham is courageous enough to think and act in opposition to the almost general sentiment. It is probably with some well-defined intentions that he refused to assist in the service at his cathedral held on the completion of works of restoration just effected there; and the apparent difference which has arisen between his lordship and an archæological canon of Durham itself, supported by a large number of local clergy and laymen (so runs the report), would seem to show that the fathers of the Church are not all arrayed on the side of antiquarianism and the affected revival, in an age of School Boards, of many things which are necessary only to those who can neither read nor write.

The manner in which the works of the Middle Ages were but recently regarded,—the almost contemptuous reference to the arts and learning of their Mediæval forefathers made by the Augustan worthies of a hundred years ago, both in France and England,—is probably at the bottom of the reaction which set in amongst a limited few at the beginning of this century, and which is now at the very height of its successful and triumphant career. When it is remembered how much abuse, both in prose and poetry, had been levelled at the "Goths and Vandals,"—the barbarians who had laid low the civilisation of Europe, and whose descendants pretended to refinement in the arts!—it is easy to understand the feeling amounting to enthusiasm with which the light of our time broke upon the "dark ages." Dryden, who had sung the glories of Greece and Rome, closed his eyes upon the world until "Raffaelle's age," and wrote of the interregnum, when—

> "Long time, the sister arts, in iron sleep
> A heavy Sabbath did supinely keep."

Addison, in his "Vision of False Wit," "discovered in the centre of a very dark grove a monstrous fabric, built after the Gothic manner, and covered with innumerable devices in that barbarous kind of sculpture." He described the deity of the place as a monk, "with a book in one hand and a rattle in the other." On another occasion he made a comparison between the mental effect produced by buildings constructed in the classical and the Mediæval manner. "Let any one reflect," said he, "on the disposition of mind he finds in himself at his first entrance into the Pantheon at Rome . . . . . and at the same time consider how little in proportion he is affected with the inside of a Gothic cathedral, though it be five-times larger than the other, which can arise from nothing else but the greatness of the manner in the one, and the meanness in the other." Then, again, so consummate an observer of human nature as Fielding talked with the rest of "centuries of monkish dulness, when the world seems to have been asleep"; while Dr. Johnson, who held very decided opinions upon the utilitarian character of architecture, and expressed them in his own uncompromising phraseology, maintained that sculpture consumed labour disproportionate to its effect. A fellow," cried he, "will hack half a year at a block of marble, to make something in stone that hardly resembles a man. The value of statuary," he continued, "is owing to its difficulty. You would not value the finest head cut upon a carrot." Even technical books published less than seventy years ago ignored, as in the case of Rondelet's celebrated "Art de Bâtir," the Mediæval methods of construction, and barely mentioned a pointed arch or a high-pitched roof. Yet a few thoughtful persons had already acquired some insight into the character of these despised marvels of the building art. They began to talk of them with something of the same diffident admiration that Philibert de l'Orme displayed while discoursing about the same things in the sixteenth century. But although Horace Walpole had built a cloister, and a tower, and an octagon room, and was living in them in 1770; although Windsor Castle was re-arranged about 1830, and made to combine the external effect of a fortress with the internal comforts of a modern residence, the popular recognition of the great building truths left on record by the workmen of the Middle Ages did not take place until the present Palace of Westminster was half-way to completion. Then raged the great Battle of the Styles,—a war, which (and is it not a strange and significant fact?) no provocation from either ranks of the original combatants can now rekindle. Then the "Goth" exulted over his undoubted victory; "so that now," to quote the ever-consistent language, when discussing this subject, of Mr. Fergusson, "there is not a town, scarcely a village, in the length and breadth of the land which is not furnished with one of those forgeries (Mediæval churches); and so cleverly is this done in most instances, that if a stranger were not aware that forgery is the fashion instead of being a crime, he might mistake the counterfeit for a really old Mediæval church."

Nevertheless it is certain that this passing period of revival, due to the study of old stones, has been the means of collecting, sifting, and analysing information which must for ever be useful, if not indispensable, to the students and practitioners of a no remote future. In fact, so large is the accumulation of archæological matter, so numerous are the books of reference, so varied and extended the illustrations, that they are at once the triumph of modern architects and the ruin of modern architecture; for it is no longer necessary to think, when all the thought of the past is portrayed in convertible characters upon a thousand pages, ever open for the public use.

But the archæological mania, so to speak, has a technical aspect, which, even in its abuse, is not altogether disadvantageous. The present generation has been brought up to feel a learnedly superstitious veneration for,—not alone antiquity, but—antiquated things. While a neighbouring nation is under the constant fear of encountering an inevitable political deluge, the youth of England are taught to fix their eyes upon an artistic creation dating, if we are to judge by reports of recent papers and speeches, from the infancy of Alfred the Great. To possess a church which contains Saxon remains is the highest aspiration of the English antiquary; and why not, may well be inquired, if only to preserve love of country and race, in all its present force and integrity? The authentic history of England possesses few memorials earlier,—and those are scattered or so mutilated as to be of small value,—than, say, to be on the safe side, the Heptarchy. It is quite right that we should study, compare, and discuss them; and, moreover, as has been just done, inquire into the habits and character of the people,—of giants, saints, martyrs,—they remain to commemorate, whose history and sometimes effigies are offered to the adoration of a section of the scientific world which subsists by an inherent desire to believe. It would, however, be well not to entirely forget that hundreds of years before our era of recorded antiquity there existed, at a distance from our shores—not giants, nor saints, nor martyrs, as we understand them—but ordinary flesh and blood like ourselves, men who thought and acted as we do in this year of grace; sculptors, painters, architects, who did as well as, if not much better than, we have done throughout our thousand years of national existence; historians, poets, burlesque-writers; senates, and assemblies; communities of politicians; as well as schools of philosophy, on which is founded the amended thought of the modern world. Of course those who have lately melted over grotesque carvings in the Eastern Counties, or the prowess of Tre, Pol, and Pen in a western colony of Phœnicia, are aware of these facts. They are merely hunting up local traditions, historical spots, and rare old stones, for the sake of improving an acquaintance with their own country, and adding it to a reserve store of information relating to the great thinking eras of Greece and Rome. Of course, they do not uncover pet bits of herring-bone walling, or zig-zag ornament on coarse Romanesque arches, for the purpose of reproducing similar effects in "Saxon Revived," or some yet-to-be-evolved resuscitation of a Norman style. Men go, and architects in particular, to improve their knowledge of original native art; to ferret out objects which must at any cost be preserved; and to protest, in sometimes strong language, against the possible vandalism of society outside the archæological pale.

Archæology pursued by the few is an entirely modern study, not much older than the century; pursued by the many, it is a co-operative recreation of our own time. It has produced, what Lord Carlingford, at Colchester, very truly said was wanted,—"a certain tenderness for 'old, unhappy, far-off things,' and even for old and ugly things." This tenderness has been strengthened by a little knowledge of the things in question; and thus all classes of the British nation have been induced to touch old walls and images with a soft hand; to regard a ruin with veneration; in fine, to respect that which, if not always the common property, imparts in one way or another wholesome pleasure and instruction, and also a kind of refinement to all people, high and low. But although this same tenderness for historical monuments has been exhibited in indignant pity for the manner in which they were once treated, this same knowledge, even where most exalted, has not been deep enough (the ancient philosopher spent a lifetime in learning that he knew nothing) to prevent sometimes destruction practically as complete as that caused by the much-abused ignorance of the last century, and even the iconoclasm of an earlier period. We have said that archæology is a modern science; but it is also, and it must of necessity be, an ephemeral one. Imagine a learned society, engaged four hundred years hence, in analysing the great architectural works of the present day, referring to our pages for information concerning the architects who designed them and the artisans who worked upon them; imagine the perplexity of the situation when a question arose as to what was genuine and what restoration in a real Mediæval church or cathedral! All the affection that the modern artist is capable of feeling has been expended upon the successful task of translating a native building, five, six, or seven hundred years old, into a state of completion such as none of its numerous builders would recognise could they see it at the present moment—into such an entirety perhaps as never before existed at any given period of its chequered history. And this—the once benefit, now bugbear of Restoration—is the result of diving into the past; ay, more, it is the only means, in the present complication of artistic traditions, of acquiring knowledge. You cannot have your cake and eat it too. You cannot filch treasures from the buildings of the past and maintain those buildings in their historical integrity. The archæologist has loved and lived, and a brilliant future is awaiting the architect, or engineer, or whatever another century may choose to call him. It seems as if the great changes of the European world, deciphered by its monuments, could be counted by cycles of four hundred years. See Greece four centuries before Christ; Rome in His time; then, at the beginning of the fourth century, the triumph of Constantine, and, at the close, the division of the Roman Empire, perhaps afterwards relative happiness, seeing that history records little of

that age; the eighth century and the advent of Charlemagne, who, with

> "... his brave peers, each with his visor up,
> On their long lances lean, and gaze awhile
> When the Venetian to their eyes disclosed
> The wonders of the East;"

—the twelfth, and mutiny amongst the workmen of Western Europe, "Renaissance en Occident," as M. Viollet-le-Duc has called it, and the beginning of the great architectural era in France, Germany, Spain, and England; the sixteenth, and that sudden discovery of the ancient literature and learned amazement at the wealth of Greek and Roman civilisation; and lastly the twentieth—it is not many years off—when it shall be the custom for Englishmen not only to read and write and talk, but also to build, in the language of their own time.

NOTES DURING A TOUR IN GERMANY.

Aix-la-Chapelle.—The restoration of the cathedral here is progressing, under the superintendence of M. Bethune, the Belgian architect. All the plaster has been stripped off the walls of the circular portion of the church, and this has brought to light some remains of the ancient mosaics. A portion of the mosaic in the dome has been restored. A high altar, surmounted by stone baldacchino, has been erected in the choir apse, and another altar, with lateral curtains suspended from metal rods supported upon brass columns, at the west end of the choir. Both are fair in design, but it seems to us that the order of things should have been reversed, and that it would have looked far better had the baldacchino altar been placed at the west end of the choir, and the altar with the suspended curtains been erected in the apse. The great north transept has been restored and decorated tolerably well. Some new statues have been placed in the niches of the choir buttresses. They are excellent, and amongst the best examples of modern Gothic sculpture we have seen anywhere. The front of the town-hall is being restored pretty well. A great number of new houses are being erected all over the place. They are alike detestable in design and construction: worse examples of domestic architecture are not to be found, even at Bayswater!

Cologne.—The west front of the cathedral is approaching completion. The great western window and gable are finished. The south-western tower has been carried up as high as the arches of the windows in the octagonal lantern, and the north-western tower is only a few feet lower. We are sorry to say that the nearer this great façade approaches completion, the less satisfactory is its effect. There is an entire want of that repose and quiet dignity which we are accustomed to see in the west fronts of our own cathedrals. Nor is this replaced, as is the case in the great French west fronts, by a magnificent effect of light and shadow. Instead of the solemn gloomy grandeur of the great portals of Amiens or Rheims, we find at Cologne nothing but tameness and correct architectural insipidity. It is a great pity that the modern architects of Cologne Cathedral did not take advantage of the lesson taught by their Mediæval predecessors at Strasburg, Antwerp, and Vienna, and carry up *one tower first*. They would then have seen, as did those great artists, that the single tower was quite sufficient for the effect of the building, and would have abandoned the idea of carrying up the second tower, and thus they would have avoided the painful monotony and uniformity which render this front so exceedingly uninteresting. That the Mediæval builders had abandoned the idea of carrying out the design now being executed is proved by the fact that the small portion of the north-western tower which they *did* build varied considerably from the ancient drawing and also from the south-western tower, proving that they foresaw the monotony of effect which would arise from too close adherence to the original design, and determined to avoid it. The terrace which surrounds this church, except upon its south side, is now completed, and is as great a disfigurement to the building as we always predicted that it would be. It is either too wide or too narrow,—viz., it is too wide to form a basement-table to the church, as is done at Ratisbon; and too small and insignificant to convey the idea of the church being constructed upon a solid platform, after the manner of the classical temples. It is, in fact, simply a mistake and a disfigurement, and we sincerely hope that it will be cleared away and replaced by a grass slope, or an incline covered with flag-stones. The meaningless fountain at the east end, just under the noble apse, is another feature which might well be removed and carted off to the garden of the nearest *restaurant*. Some ancient glass of various dates has been placed in the windows of the west aisle of the north transepts, which forms an interesting addition to the vast store of ancient stained glass adorning this noble cathedral.

The restoration of the church of St. Mary "on the Capitol" is now nearly completed, and is, perhaps, the finest example of modern decoration in Germany. The whole church has been covered with really fine painting in the Romanesque style. A noble pulpit of granite and marble, supported upon columns which rest upon the backs of very Venetian-looking lions, has been erected. Two beautiful side-altars, the reredoses of which are formed by various small subjects engraved on copper gilt, surrounded by borders of enamel, with large crystals marking the corners, have been set up against the eastern columns of the crossing, and the whole of the floor of the church is being laid down in mosaics of black, white, and red marble. This restoration is in every way a highly commendable one, as not a single object of interest of any date has been removed out of the building; and although the style adopted is Romanesque, in accordance with the general style of the building, yet all the furniture and additions of a later date have been carefully retained, even the Renaissance altars and screens.

The church of St. Martin the Great is now undergoing a complete restoration, and is being decorated by Kleinertz, the clever decorator of St. Mary zu Capitol, already mentioned.

Our readers who recollect picturesque old Boppard will be horrified at the rows of new houses facing the Rhine, and the once quaint old villages of St. Goar, St. Goarhausen, Caub, Bingen, and Rudesheim look as uninterestingly neat when seen from the Rhine as our own Margate or Ramsgate.

The fine old Romanesque parish church at Baccarach, which was burnt down about three years ago, has been rebuilt, except the tower, which still remains a ruin, and the elegant spire, which formed such a picturesque object, is now looked for in vain.

The cathedral at *Mainz* is undergoing a restoration at the hands of the well-known Dutch architect, Mr. Cuypers, of whose works we have so frequently spoken in terms of the highest praise, especially his excellent restorations, and as this is the case we feel no scruple in finding fault with what he has done here. We cannot conceive what could possibly have induced him to replace the beautiful fourteenth-century octagonal lantern, which rose so gracefully over the eastern choir, by the present heavy-looking Romanesque structure. We have always praised Mr. Cuypers's restorations as being so remarkably conservative, but really this is one of the most destructive pieces of restoration that has ever come under our notice. We should be glad to hear what reasons could be brought forward to justify what, we must say, at present, seems to us a most barbarous act of destruction. The interior of the eastern choir and the south aisle of the nave are also undergoing restoration, and of this portion of the work we can speak in the highest praise. A new altar in the old German style, with great painted doors and gilded canopy work, is an excellent example of modern church furniture, and forms a singularly pleasing and picturesque object.

Würzburg will cause great lamentation among the artists; its picturesque old walls, gates, moat, and glacis are all being involved in one sweeping act of destruction, and their places are being occupied by rows of the most hideous houses that could ever have haunted Pront in his worst nightmare. Amongst these, *a sham castle painted chocolate colour* is a *neat* example of modern Bavarian taste! The fine old garden of the palace here has been very much spoilt by modernisation. A German friend of ours, an old inhabitant of Wurzburg, deeply regretted these tasteless alterations, and told us that all over Germany there seemed to be a spirit of indifference to matters of art, and that where men a few years ago took a pride in making their houses and towns beautiful, now all that is thought of is to realise as much money as possible with the smallest possible outlay, and certainly a comparison between the houses erected in Germany twenty years ago and those now being built will convince any one of the truth of this remark.

The interior of the churches of St. Mary (Marienkapelle) and St. John the Baptist (Stiftshaus) has been creditably restored.

The suburbs of *Nüremberg* are growing more and more, but the so-called "Mediæval style" adopted here is perhaps even worse in its Brummagem vulgarity than the utter want of style adopted at Würzburg. Ratisbon is at present little altered, but the old Danube bridge is threatened, and the old gate-tower is unfortunately shortly to fall a victim to the demon of modern "improvement." The restoration of the exterior of the cathedral here is complete now, and we are able to speak of it in terms of great praise. The west front is far finer than that of Cologne, and the spires are in good proportion and not too large for the church. The beautiful stone of which they are built has already assumed a look of antiquity, so that they harmonise well with the rest of the building, and add greatly to the beauty of the distant views of this most picturesque town.

The interior of the old Scotch Benedictine church of St. James has been restored, the plaster and whitewash which disfigured it are removed, and a new high altar of metal work, in the Byzantine style, has been erected. We cannot, however, praise either the decoration of the choir or that of the roof of the nave. The new building for the cathedral clergy residence is simply detestable; it is in the very worst modern Nüremberg style, and the new seminary is in the worst Würzburg style, or *no* style. We are sorry to have to say so, but what we have seen in this tour through a considerable part of Germany does not encourage us in the hopes which we once entertained for the future of German architecture. Nothing which we have seen shows any advance upon what was being done ten or twenty years ago, whereas mean, paltry, cheap building is greatly on the increase. Where honest brick and stone used to be employed, stucco is now brought into requisition, and the pretty decoration for which the Germans were well known has given way to whitewash and stone colour.

ANCIENT MASONRY.

THOSE who attended the Archæological Congresses just ended must have been struck by the many specimens of ancient masonry presented to their notice, as well as by the various and exceedingly diverse opinions expressed thereon by well-known experts and skilled archæologists. To the looker-on as well as to the student of antiquity this conflict of opinion must be exceedingly disappointing and unsatisfactory, yet it shows how much still remains to be done to make the classification of masonry understood, and to enable even experienced eyes to say this is Roman and that is Norman, this is British and that is Saxon. Much of this uncertainty is due to archæologists working in isolated fields of research, and from the examples constantly before their eyes, judging of work executed in other places and under other conditions at the same period.

The first discussion on ancient masonry commenced at Colchester. Again and again has Colchester been the theme of antiquaries. There is always some one who, knowing Colchester history, and reading of Camulodunum Colonia,—of its defence by the veterans of the legions when attacked by the revolted Iceni,—see in the solidly-built keep of the castle Roman work, and proclaim it to be the Temple of Claudius erected in the first century, whose site was consecrated by the lives of the first Roman colonists. In vain is it pointed out that the plan of the castle is essentially Norman in its character, and though it has brick bonding courses, and much brick and tile has been used in its construction, there are other examples in churches of known date to prove that the Normans, in a country where stone is scarce, availed themselves of the most common material, and erected their edifices *more Romano*, as it is called by old writers, as far as material is concerned, but still keeping to their own elevations and ground plans. Those who took the trouble to compare the oldest portion of Colchester walls, which are undoubtedly Roman, with the *castle*, would see a marked difference in the workmanship and mode of construction, though the walls have been repaired at different dates. More than a generation ago Mr. Matt. Bloxam published, in the *Archæological Journal*, a dissertation on the combination of brick and stone in ancient buildings, and then, as now, this veteran archæologist could not assign the keep of Colchester to the Roman, or even the Saxon, period. The resuscitation of the

exploded idea that Colchester Castle was "the templed citadel of Claudius Cæsar" shows how strong is the tendency of local feeling to give weight to shadowy allusions, and to create a theory out of an illusion. The emphatic expression of opinion of Dr. Freeman and Mr. J. H. Parker that the Rev. H. Jenkins and Mr. Buckler have been misled by apparent likenesses, will be accepted by many as settling the controversy in favour of the present edifice being constructed by Eudo Dapifer.

By a curious coincidence, not later than Thursday, the 24th ult., a similar controversy was raised on the summit of the inner vallum of Old Sarum, respecting the age of a piece of masonry—the only piece of ancient masonry which exists above ground outside the fosse of the Norman keep. Here, broad and general antiquaries of experience, like Roach Smith and J. H. Parker, found themselves at variance with those who, without irreverence, may be called local men. Mr. Roach Smith pointed out the curious fact that though this was undoubtedly one of the *oppida* captured by Vespasian and occupied by the Romans, scarcely a vestige of Roman occupation had been found; yet, like Stukeley, he thought the fragment of masonry, with its wide-jointed ashlar work and characteristic set-off, was part of the Roman castrum erected in Sorbiodunum. The Rev. J. G. Joyce and the Rev. Prebendary Jones argued the absence of bonding courses of tile in construction, and of pounded tile in the mortar; and though it would not appear strange to use chalk rubble on a chalk hill, they leaned to the opinion, evidently, that the masonry was part of a wall that encompassed the top of the mound built in Norman times. Mr. Roach Smith doubted that such a wall ever existed; but the tenant, Mr. Marsh, said the foundations were yet to be seen. Time did not permit of excavations, which would have decided that one point, at any rate.

The examination of ancient masonry by archæologists cannot be too carefully done, when there are conflicting circumstances, and neither moulding nor date to guide the experienced eye. Those who went to the Cornwall Congress of the British Archæological Association, and joined the Salisbury meeting of the Wiltshire Society afterwards, had a fine opportunity of inspecting some of the most ancient masonry in the kingdom. The fortifications at Worle, near Weston-super-Mare, and at Chune Castle, near St. Just, are amongst the best examples of rubble fortifications which remain to us. There is no cement, no mortar, nor signs of any having been used. The stones have been collected, arranged, and piled one on another with skill, and according to a definite plan, for the purpose of refuge and defence. More inhospitable spots could scarcely be chosen. Both have signs of circular dwellings within the compass of their inner walls, and have their entrances so arranged as to afford the defenders every advantage. These castles never had their ramparts cased in earth, like those in Leigh woods or the one on Edge Hills, in Warwickshire, at Nadbury, where the stone rampart is supported by earthen banks. The stonework in the neighbourhood of Chune is very interesting. The cromlech in the immediate neighbourhood of the castle, known as Chun Quoit, has a table-stone, 12 ft. 6 in. in length and 11 ft. 6 in. in width, forming the roof of a kistvaen, formerly surrounded by a barrow or cairn of small stones similar to those forming the ramparts of the castle. This is a different arrangement to the larger Lanyon Quoit, the table-stone of which is 47 ft. in girth, 18 ft. 6 in. long, and 9 ft. in width. This immense stone is not supported on slabs, but by three stone pillars, and, in Mr. Borlase's opinion, was never surrounded by either a cairn of stones or an earthen barrow, though the latter is probable. There is some reason to believe that the underground dwellings at Cairn Uny may belong to the era of the cromlech. The passages are built of stones, and the roof is formed of slabs of granite, and, indeed, a cromlech, surrounded by the stone barrow, is to be seen a few fields off, a good example of the manner in which the stone kist was preserved from the intrusion of animals and the influence of the weather. There is no doubt that these structures date from a far-gone age.

Perhaps the most curious point discussed was the age of the circular rubble walls which enclosed the stone circle known as the "Nine Maidens," at Boscawen-Un. The discovery of another circle during the visit of the British Archæological Association, which is surrounded by a similar wall, and which is as yet unexplored, will throw considerable light on this question; for, if the circular wall is contemporaneous, or even of an early date, it will go far to support the opinion that if these stone circles were not originally sepulchral, they were used as places of sepulture at a very early date, as instanced by the rude pottery and implements found within them. It should be observed that not one of these stones bears the mark of any tool or signs of any dressing whatever. This is far different from the vast stones which form the circle on Salisbury Plain.

Stonehenge must be taken to be the oldest example of worked stone in England, if not in Britain; yet here we have a series of monoliths, unworked, of stone foreign to the locality, surrounded by a circle of local Sarsen stones fitted with tenons which hold a mortised stone impost, the tenon and impost being carefully worked; indeed, one of the fallen imposts shows yet the mark of a tool, but whether metal, flint, or stone, no one has determined. An inner arrangement of "foreign" stones in the shape of a horse-shoe is also supported by corresponding trilithons, and what is called the altar-stone is from a different quarry altogether. It is doubtful whether the inner horse-shoe stones have been worked with tools to their present pyramidal form, but the foreign stone which lies on the left-hand side of the entrance has had two cavities worked in it for some purpose, and is therefore remarkable. So remarkable is it, that in some of the attempted restorations of Stonehenge, it is assumed to have been one of three imposts of foreign stone; but there is nothing to justify this assumption. If the newly-discovered stone circle in Cornwall turns out to be in its primæval state, the outer circle of rubble may have some relation to the outer circle at Stonehenge.

It was during the Colchester Congress that Mr. J. H. Parker made some pertinent remarks respecting what is called "herring-bone work." He pointed out that it might be of any age, but, curiously enough, the dated examples at Rome are of the eleventh century. As we frequently find "herring-bone" work in the foundations of old churches, and as there is a fine example in a narrow causeway over the fosse at Tamworth Castle, attributed to Æthelflæda, the daughter of Alfred, we should bear this remark of Mr. Parker's in mind. At Silchester, however, there are specimens of herring-bone work in the outer wall, which appears to have been a whim of the individual mason.

Skilled archæologists are always chary of placing fabulous dates on old masonry. Yet nothing is so common as to hear assertions made of this being Saxon or the other pre-Norman, whenever an unusual arrangement is seen, when, in reality, the variation and ruder shape are caused by the difference in hardness of the material used and the position of the district. We should never forget, when speaking of masonry, the researches of M. de Caumont, who, on investigating the castles of the Norman barons who accompanied the Conqueror, came to the conclusion that none of those prior to the eleventh century were constructed of any other material than brick and wood. The earliest stone keeps of Norman date were those of England; and the one built by Gundulph at West Malling, in Kent, known as St. Leonard's Tower, was said by M. de Caumont to be earlier than any similar building in Normandy itself.

THE UNIVERSAL INTERNATIONAL EXHIBITION OF 1878.

IT cannot be said of this project that it "drags its slow length along"; and the rapid progress it is now making, on paper at least, already supplies an *embarras des richesses* to those seeking information relating to the leviathan.

Any one visiting the systematically-arranged offices at the Palais de l'Industrie within the last few days, must have observed—especially if he were not himself warmly interested in any "tender"—the evident anxiety displayed on the generally well-governed countenances of the host of contractors on their way in and out of the various departments. And well may the contractors feel some anxiety, for the work they have before them between this date and the end of next year is indeed no light business.

We have under our eyes at this moment the book of general conditions and clauses imposed on the contractors.

Clause 1 comprises the conditions to be fulfilled, in order to be admitted to the adjudications, consisting of certificates of capacity, bail, &c.

Clause 2 forbids the contractors to undercontract without authorisation; it regulates the order of service for the execution of the works; exacts the presence of the contractor on the ground; throws on him the responsibilty of the choice of his clerks, foremen, and workmen; it indicates the quality of the materials, their dimensions, and disposition, &c.

Clause 3 establishes the regulation of the expenses.

Clause 4, the payments.

Clause 5 occupies itself with the difficulties and disputes that may arise between the chief engineer and the contractor.

It has been owing to these preliminary arrangements, which are not yet completed, that the actual work on the Champ-de-Mars is still uncommenced, and no later than yesterday might be seen, for the last time however, the accustomed manœuvres of the military.

Notwithstanding that most of the journals here have announced that the ground had long since been broken, the only work that has yet been done has been the levelling to which we have already referred; but that levelling is but geometrical, and has been made to assist the work of laying down the canals of irrigation, the gas conduits, and other underfloor contrivances, which in themselves will exact several months' labour.

Within the last two days the official plans have been distributed, and we reproduce from the *Rappel* and the *Gaulois* the following intelligence, which we hope will be useful to our readers, as here in Paris the rest of the world is expected to contribute largely.

The *Gaulois* says in its issue of the 2nd inst.: "The regulation of the Universal Exhibition of 1878 will appear in some days. . . . . We have been able to procure this important document before its appearance, and we will give several extracts which it is important that the public and the exhibitors should know as promptly as possible.

Article 7 states that the Foreign Commissioners constituted at the demand of the French Government are invited to enter into relation with the Commissioner-General as soon as possible.

Art. 9. In each section consecrated to the exposers of the same nation, the objects exhibited will be divided into the following nine groups:—1. Works of art; 2. Education, instruction, material, and processes of liberal arts; 3. Furniture and its accessories; 4. Tissues, clothing, raw and worked-up products; 5. Extractive industries; 6. Tools and processes of mechanical industries; 7. Alimentary products; 8. Agriculture; 9. Horticulture. A special room is reserved to retrospective and ethnological exhibitions.

Art. 10. A methodical and general catalogue of the products of all nations, indicating the places which they occupy in the palace, parks, or gardens, will be got up by the care of the Commissioner-General. Each nation, however, will have the right to make, at its own expense, and in its own language, a special catalogue.

Art. 13. The French or foreign exhibitors will have no rent to pay for the space they will occupy in the Exhibition.

Art. 16. Are admissible to the Exhibition, the works of French and foreign artists executed since May 1st, 1867."

Here is what the *Rappel* says on the plan of the Exhibition:—"The quadrangular form has been adopted. It has, over the ovoid form employed in 1867, the advantage of rendering the construction more easy and more rapid, and permitting the materials after the demolition to be more easily carted away. It facilitates for the machines the transmission of the movement. Lastly, the *coup d'œil* which the galleries will offer will gain incontestably by it. The view, instead of having nothing before it but arcs of circles, and a consequently circumscribed horizon, will see in all its length, and at one time, the display of the different rooms.

The quadrangular form will not hinder one from traversing the Exhibition as in 1867, either in the order of the nationalities or in the order of the products. The nationalities will be distributed in the longitudinal galleries, and in each of these galleries the similar products, ranged in a like order from one extremity to the other, will be distributed according to the order of the transversel galleries. One can then, according as one will take these in one direction or another, visit either the whole of the exhibits of one

nation, or the whole of the similar exhibits of all the nations.

In the interior of the Exhibition the Fine Arts will occupy the central part, separated from the other bays by a passage open to the air, sheltered by awnings. Two large vestibules, ornamented with statues, will be erected at the two extremities of the building, one looking towards the École Militaire; the other, towards Trocadéro. They will be 25 mètres broad and 16 mètres high. They will be constructed in freestone. Their ceilings will be painted. The cafés, restaurants, *brasseries*, and bars will be excluded from the palace, and situated either in the gardens or on the Trocadéro.

In the *annexes* in the lateral gardens on each side of the Exhibition, will be disposed the services of administration, the smaller *matériel* of agriculture, and the alimentary products.

The space covered will be 240,000 mètres square. It was only 153,000 in 1867. The park between the palace and the Seine will have a superficies of more than 10,000 square mètres. As to the Trocadéro, and the bridge which ought to traverse the river, the definite disposition are not yet agreed upon."

It has been suggested here that England and English-speaking countries have on other similar occasions been backward in their expression of a desire to participate in such great undertakings, and on former occasions England has deferred until a late hour taking any active steps to avail herself fully of the advantages here offered. In high quarters, and in cases where the loan of rare objects is sought for, the objections connected with delay are less, owing to the consequence that can be attached to a Government desire, backed up by authoritative and influential requests.

The manufacturers and the artists in England, however, seem disposed not so much to regard such exhibitions with indifference, as to procrastinate with almost an appearance of a wish to back out from a competition which, if readiness and confidence were shown in their desire to contribute, might lead to very unexpected and advantageously enduring results.

Paris, September 3rd.

BARROW-IN-FURNESS.

RIVALLING some of the new-born towns on the north-east coast, Barrow-in-Furness has strong resemblance to Middlesbrough. With the sites both of these towns there were associations of the dim past; looking back two score years both of them could count their inhabitants by a few hundreds, and both now number more thousands than they did then hundreds. At both, the iron trade has made the fortunes of the new town; the practical greatness of each, and the resources around, have been developed by foreigners; and without exhausting the points of resemblance, these may be closed by affirming that each has well repaid its obligation in the latter respect.

Surrounded with antiquarian associations, in a district boasting of old towns like Cark and Cartmel, with Swarthmoor preserving the remembrance of Simnel, and its ancient hall enshrining the memories of the first Quakers, with Dalton boasting of its Roman castle, and the glorious ruin of Furness Abbey telling of the princely style of its abbots and monks, Barrow passes largely unheeded by historians, but the curious who care to picture the desolate scene of its site two centuries ago may see the details in the journals of the early Friends. Suffice it to say that thirty-six years ago, the site of the town was only occupied by an inn, a farmhouse, and half a dozen cottages; that a score of years ago the place was an "inconsiderable hamlet"; and that, but not till 1859, the value of the mineral deposits around it began to claim attention. Even since then, one of our best "Gazetteers" deemed that all worth saying about Barrow was said when it recorded the fact that it was a "village and chapelry in the parish of Dalton-in-Furness, and that the living was a curacy in the gift of the Duke of Devonshire valued at 140*l.* per annum." A less brief description will be demanded of future describers. In a sentence, pregnant figures may hint at the development of the town and its trade, by recording the growth of its population, which in 1847 was 235; in 1861, it was about 3,000; in 1864, it had grown to 10,068; in 1871, it was 18,245; and that mushroom rate of growth is more than continued, for a census of the corporation states its population this year at 41,000. And just as Middlesbrough owes its increase to the Cleveland iron ore, so Barrow dates its progress to the working of the vast stores of hematite iron which, though worked for hundreds of years, yet, within the memory of the living, only afforded employment for "half a dozen old men" who "scratched up a little of the best" of the ore, leaving to this and future generations the raising of millions of tons.

Scrivenor's "History of the Iron Trade" (1841) quotes from West's "Furness," it is true, a passage, to the effect that "three miles to the west of Ulverston is Whitrich, the Peru of Furness," where iron ore is found, which, raised at "3*s.* 6*d.* and 4*s.* per ton," pays "1*s.* 6*d.* to the lord of the soil," is carted to vessels at a further charge of 3*s.*, and sells at "from 11*s.* to 12*s.* per ton." And the same authority, in a table of charcoal furnaces in existence in Great Britain in 1790, credits "Cumberland" with having a dozen miles from Ulverston one furnace at Duddon; whilst Lancashire had one at Backborough, ten miles from Ulverston, stated to have been built as early as 1705, and one also at Newlands, one mile from Ulverston, built in 1750. Each of these is returned under the head of Cumberland, as working, about the year 1800, with an average yearly make of 373 tons per furnace. From this date, trace seems lost, and they probably met the common fate of the charcoal furnaces of the day. Ore was found at Lindal, it is true, but it was much as described in the quotation we gave, and the past bequeathed the "commercial discovery," practically, of the Furness ore to the present. And it left also to Barrow the legacy of the manufacture of steel to an extent giving employment to thousands of workmen, and yielding a production of pig-iron estimated at a quarter of a million tons annually. That great industry pervades Barrow, penetrates to Ulverston, is the support of Lindal, which it yet undermines, has driven agriculture from a wide tract of land, and places its ruddy marks on all emerging from its bounds, even to the stream that runs through the grounds of the abbey, and ever fresh fields are added to its domain.

Barrow itself is one vast hive. Approaching the town, the vast works of the new docks are seen, and the air resounds with the clangour from the great works of the town. Chief amongst those are the Hematite Iron and Steel Works. The first furnaces were built by Schneider & Hannay, in 1869, and to these others were added, till sixteen furnaces may now send out the quantity above named. To these works were added those of the Barrow Steel Company, and in times of normal prosperity 10,000 artisans are employed in the conjoint establishment; and it is best described as one of the few producing pig for the Bessemer process, and as having the largest steel works in the country. A second era in the history of Barrow was at the opening of the docks in 1867, since which, till dulness descended upon the iron trade, there has been no check to the growth or the prosperity of Barrow. It has planted new trades, until the products of its jute-mills, its shipyards, and other constructive works, are as well known as the rails and the pig-iron it produces. As the result of the growth of these, other and allied industries have been born, each of which is tributarial to the greatness of Barrow. Docks of magnitude have been and are being constructed; and even in these times of depression there are rumours that new trades are to be introduced into this "Chicago of the West." Around it the land is ruddy with the results of the search for the hematite iron ore, which is the natural wealth of Furness. Where Lancashire produced a scanty supply of iron, it now yearly contributes nearly a million tons, the largest portion of which is from the Furness district; the Park mines alone give more than a quarter, whilst the Askham, the Lindal, and the Dalton mines are large contributors. And though now there may be a temporary check to the production, in consequence of the cloud which overhangs the whole iron trades, yet there are—in knowledge of a brighter future for it—developments of the great industry and of the illimitable resources of Furness now in progress, the result of which must be largely to add to its output of iron, and therefore to increase the trade on which hitherto Barrow has chiefly built the foundations of its greatness.

Leeds Public Offices.—Designs sent in competition for proposed new Public Offices for Leeds are now before the Mayor and Corporation.

THE ABBEY CHURCH OF TEWKESBURY.

ON the occasion of the visit of the Bristol and Gloucestershire Archæological Association to Tewkesbury, elsewhere spoken of, the Rev. J. H. Blunt read a paper on the Abbey Church. We learn from a report in the *Worcester Herald* that Mr. Blunt sketched first the history of the church itself, and afterwards drew attention to its interesting association with the great families who were Lords of Tewkesbury and Earls of Gloucester. Mr. Blunt divides the history of the Abbey into four periods,—the first embracing its original design, which was only executed in part; the second, the completed Norman church; the third, some thirteenth-century alterations; and the fourth, the period of the vaulted roof and the chevet of chapels. These he traced in detail. Mr. Blunt says:—There is much reason to think that the original design for the Abbey included two western towers, with the noble recessed arch and an interior porch between. The west end as it stands is, indeed, a great puzzle to architects and antiquaries, for it is difficult to believe that the Norman master of the works made his fine arch for no particular purpose, and yet no purpose is discernible. The measurements of the walls are considered, however, by Sir Gilbert Scott, to support the theory of towers, and fragments of what appear to be the commencement of their eastern walls have been observed in the triforium. A distinguished archæologist and historian who examined the west end not long since gave it as his final opinion that the only chance of determining the question was by building up theories and then demolishing them, as children do with card-houses; and he considered it possible that out of the ruins of many theories one stable and practical one might eventually be formed. I confess to holding a strong opinion myself that the western faces of the present aisles were originally constructed for the purpose of being carried up as towers, and that the small turrets are an afterthought. The grand arch of seven-recessed members would then have occupied a natural position, having a massive support on either side; whereas, at present, beautiful as it is in itself, it must be acknowledged that it looks rather inconsequential, and like a jewel too large for its setting. Subsequently tracing the history of the building from 1107 to 1123, Mr. Blunt says,—The substitution of turrets for towers at the west end took place, it is probable, as a consequence of the determination to raise the central tower two stages, and surmount it with a wooden spire. This addition to the tower has made it exceedingly beautiful, and those who are familiar with Durham will remember that there is a strong family likeness between it and the two western towers which overhang the rocks and the river there. When the abbey was completed under Earl Robert of Gloucester, it consisted, as originally designed, of a nave and its aisles, a spacious transept with apsidal chapels, and a choir with a similar semicircular wall. This nave was and is 165 *ft.* long and 33 ft. wide between the columns, the width from wall to wall of the aisles being 71 ft. The massive columns are each 6 ft. 3 in. in diameter and 30 ft. high, 6 in. less in diameter and 3 ft. more in height than those of Gloucester. These seven grand columns on either side, with the four piers and responds east and west of them, support sixteen plain semicircular arches, which carry walls nearly 6 ft. thick to bear the roof of the nave. In their original condition the walls were pierced with a pair of double arches about 4 ft. in height and width, which open into the triforium; and above there were small clear-story windows giving light to the roof. The clearstory windows have been enlarged into low and wide three-light windows for lighting up the vaulted ceiling; but all above the capitals of the columns is very unsatisfactory in the proportions which its several parts bear to the columns themselves. The church was probably similar to the nave as regards the pillars and arches which divided the presbytery from the procession-path or aisle, being the same width as the nave, 33 *ft.*, and exactly twice that number of feet in length. The ceilings throughout the church were at this time of timber, panelled; similar to the Norman ceiling remaining at Peterborough; and they were no doubt decorated with colour and gold, as the columns and walls were. The floor of the high altar was not so much raised at that time as it is at present, but the columns were lower by two courses, and thus the proportion would not seem very different from what it does at present. Most likely the altar stood upon a plat-

form of steps, such as is used for the throne at coronations in Westminster Abbey, and above it there would probably be some kind of canopy giving point and dignity to the Holy Table in the general aspect of the choir. The tower-lantern was open for almost 20 ft. above the arches which support it, the walls of the interior being arcaded in two stages and having windows in a third stage above. Thus completed, the Abbey was consecrated on November 20, 1123, seven centuries and a half ago. After this time for about a century there appears to have been little or no change in the church itself, but in the first half of the thirteenth century some extensive additions were made to the north side of the church, and the choir underwent such alteration as must have amounted to a reconstruction of all above the piers. This was, in fact, an age in which a great deal of reconstruction was going on, those who loved their churches and had means for carrying out their wishes endeavouring to keep pace with the developments of pointed architecture. A glance at the pillars of the choir will show that they were at this time raised higher by two courses of masonry. This was done partly for the purpose of raising the floor of the high altar, and partly to bring the piers into better proportion with the pointed arches which took the place of the round ones, for which they had been built. It is scarcely probable that the apse was of any other form than a semicircle, as originally constructed, and no doubt it was altered to the present angular form, beautiful without and within, when the piers were heightened. In what manner the choir was roofed in at this time it is impossible to say, for the noble windows and vaulted ceiling belong to nearly the end of the following century, and if there was ever an Early-English vault it has entirely vanished. The altar had at this time been made so splendid that it became one of the most celebrated in England. A sad memorial of its glory remains, in the shape of its mensa or slab. This was a blue marble measuring 13 ft. 8 in. long, 3 ft. 6 in. broad, and 7 in. thick. At the Reformation it was put under-ground in the north ambulatory. It was discovered in 1607, and again appropriated to its ancient use. In 1739 the sum of 14s. 6d. is entered in the churchwardens' accounts for removing it again, in the night, to the aisle. Since that time it has been again taken up, sawn in two lengthwise, and turned into benches on either side of the porch. During the alterations that were made in the choir on October 25, 1241, the body of Fitz Hamon was removed from the chapter-house, where it had hitherto lain, and placed in the middle bay of the choir on the north side. With him was also reinterred, being brought from the same place, the body of Abbot Benedict, the third Abbot of Tewkesbury. On the top of the table-tomb you will see the matrix of a knight's wran, and in the floor there are tiles emblazoned with the arms of the Abbey, and Fitz Hamon backed by a pastoral staff. What association there was between Fitz Hamon and Abbot Benedict I am not able to say. It was about the same time when the choir was reconstructed that a cluster of chapels was erected on the east and north sides of the north transept. The first built would naturally be that next to the ambulatory, into which it opens by a beautiful arch recently opened out during the work of restoration. The building of this chapel necessitated the destruction of the apse on that side, and I should think that the Norman arch by which it had opened into the transept was still retained for the new chapel. Beyond this, northward, a second chapel was built, perhaps as a development of the original plan; and westward of this, communicating with it by three narrow Early-English arches, there was a third chapel with a vaulted Early-English ceiling of the same character as that of Westminster Abbey, and very rare in Gloucestershire. This western chapel has entirely disappeared, but its extent is shown by the traces of its vaulting on the wall of the transept, and foundations have been traced which were no doubt those of its walls. There is an old theory, backed by the authority of the respected vicar, Canon Davies, that this cluster of chapels, or the northern and western portion of it, was the ancient lady-chapel. I venture to think that the documentary evidence shows that there were three chapels here, dedicated to St. James, St. Nicholas, and St. Eustachius. The only chapel of St. Mary that I remember to have seen mentioned in any document is described as being near the vestry. The chapels of St. Nicholas and St. James I believe to have been built by Prior Sipton about A.D. 1237, and that of St. Eustachius by Prior Henry de Banbury, about 1246. Coming to the last of the four periods which mark the successive developments of the original structure, Mr. Blunt said the fourteenth century saw (1) the reconstruction of the upper part of the choir; (2) the building of the beautiful chapels of the chevet; (3) the building of the now effaced lady-chapel; and (4) the substitution of the present vaulted ceilings for timber, or whatever existed before, throughout the building. These he severally described, and said that to the great works of the fourteenth century must be added the vaulted ceilings throughout the church, the date of which is proved to be after 1321, by the appearance of the Despenser arms. The nave ceiling was put up probably about 1375. The bosses at the intersections of the ribs are sculptured with Scriptural subjects in regular order, beginning with the great figures of Adam and Eve, which support the westernmost ribs of the groining. Mr. Blunt next gave a history of the families who owned the secular lands of Tewkesbury, who were the great builders and benefactors of the Abbey, and whose names were widely known among the bravest and most honourable of England's great men during the Middle Ages,—the Earls of Gloucester. He then remarked upon the noble monuments in the church, and concluded his paper with some remarks on the restorations. In referring to what still remains to be done, he remarked that there are twenty-five good-sized windows in the chapels alone for lovers of stained glass to exercise their liberality upon.

CUMBERLAND AND WESTMORELAND ARCHÆOLOGICAL SOCIETY.

THE second two-days' excursion of this Society for the present season took place on the 30th and 31st ult. Aspatria was selected as the starting-point on the 30th, and conveyances being taken at the station, the party proceeded at once to

Plumbland Church, where a short time was spent in the examination of an old Runic stone, in two pieces, which, in the thirteenth century, was built into the wall of the church as a corbel. After entering the church, an interesting paper concerning it—prepared by the Rev. C. W. Watson, curate of Plumbland—was read by the Rev. E. E. Curwen. The paper stated that the original church of Plumbland, of which there were no traces, stood on the site of the present one, and consisted probably of an oblong nave, the north and south walls of which stood where the pillars of the present church stand, and of a chancel about the same length as the present one. The church was rebuilt by subscription from a design by Messrs. Cory & Ferguson, of Carlisle, at a cost of 2,155*l*. At the close of Mr. Watson's paper, Mr. Jackson read a short paper on the "Orfeurs" of High Close, as it is commonly called, or Plumbland Hall, the commencement of whose connexion with the parish of Plumbland appears to have been during the reign of one of the Edwards.

The party then drove through Plumbland and past Threapland Hall to Bethel, where a halt was made for the purpose of inspecting the large boulder-stone, lying in a field near the village, known as "Sampson." This stone, which is about 25 ft. long between point and point, between 9 ft. and 10 ft. high, and about 8 ft. wide, was, in the opinion of Professor Harkness, removed from Dumfriesshire to its present situation by the action of the ice. The examination of the boulder completed, the party proceeded to Cockbridge Inn for luncheon, pressing offers of hospitality made by Mr. George Moore, of Whitehall, and Sir Wilfrid Lawson, of Brayton, having been declined by the Society on the ground that "they liked, and that it was their rule during these excursions, to pay their own way."

After luncheon, Mr. Jackson read a paper on Threapland Hall, and the visitors then proceeded to

Torpenhow Church, where a paper was read by the Rev. C. H. Gem, who at the outset referred to the theories relative to the origin of the name of the village. The first is that the Britons called the rising hill "Pen"; they were succeeded by the Saxons, who taking "Pen" for the name of the place, added the syllable "Tor"; and then the Danes added "How," meaning "Head." The same process is observed now-a-days,—the people speak of "Torpenhow Brow." The second theory is that it is a Danish name entirely,—"Torpen's How." Another theory is that "Thorpe" is a village, and that "Thorpen-how" means the "hill town, or town hill." The registers of the parish begin in 1551, and in reading them one cannot but be struck with the fact of the changes in the names of the landowners of the place. The frequent occurrence of the name of Tickell, in the year 1680, leads to the conclusion that this parish had the honour of giving birth to Tickell, the friend of Addison, and part translator of Pope's "Homer." The account-books of the parish extend from the year 1671 to the present time, and show that the affairs of the parish were at one period managed by sixteen persons,—elected from the four quarters into which the parish is divided, and the vicar and churchwardens. Among the various items of church expenses in 1759, an allowance was made of "5s. to Richard Railton for whipping dogs out of the church," and he was also allowed "3d. for a whip," and "2d. for a thong." In 1789 the proceedings of the council of sixteen were not marked by their usual sense, for they altered the pitch of the roof of the church, and sold the lead for 39*l*. 13s. 10d. The church of Torpenhow is dedicated to St. Michael, and dates from the time of William II. or Henry I. There was probably a church there before the Norman Conquest, but no part of that church remains. About the time of Henry III. the north transept was built. The present east window was inserted about the fifteenth century; the west window was inserted early in the sixteenth century. The chancel ceiling was the work of Mr. Thexton, Mr. Gem's predecessor. At the close of the paper, Mr. Cory said the church was very singular in one respect. He was convinced that the arches on the south side were of a very late date, whereas on the other side they were very early.

Conveyances were next taken to, and the visitors were driven through Ireby to

Bolton Church, which was described in a paper by Mr. C. J. Ferguson, who said it was one of the most remarkable churches, if not the most remarkable, in the county. It had succeeded a Norman one of former times, and had evidently been re-built on the old foundations. Tradition says the church was built in one night by imps at the command of Michael Scott, the Wizard of the *Lay of the Last Minstrel*, who is reported to have been a monk either of Holme Cultram or Melrose. Mr. Cory suggested that the original builder was Ralph Neville, first Earl of Westmoreland, and eighth Baron of Raby, who lived in the time of Richard II., and was Governor of the Western Marches. The church, doubtless, was built for defence and shelter, as well as for worship. In the inside of the stone roof are a series of massive corbels; and the masonry of the building is not only excellent, but of extraordinary size, some of the walling stones being 21 in. in depth. In the course of the conversation which followed the reading of the paper, Dr. Simpson said he thought it was only fair to say that William, the last Earl of Lonsdale but one, took a great interest in the restoration of the church, but he refused to subscribe anything towards it unless the roof was not interfered with.

The visit to Bolton Church finished the first day's programme, and on leaving the place the excursionists proceeded to Brayton Hall, where they were very kindly received by Sir Wilfrid Lawson, M.P.

On the second day the visitors assembled at Wigton, where the annual meeting was held, the Rev. Dr. Simpson in the chair. The first business was to elect officers for the ensuing year, which was done. The business of the meeting concluded,

Professor Harkness exhibited a small fragment of a stone celt, which he said was found in August last, by his friend Mr. Williams, of Penrith, near the entrance of Maybrough. The stone was rather rude in its aspect, and, he thought, indicated that at one time there was a population at Maybrough which probably occupied stone huts, or huts built of twigs; that this population prepared its own weapons and ornaments; and that the celt produced was a rejected fragment, broken in polishing, belonging to that ancient population.

Mr. Jackson then proceeded to read an exhaustive and able paper on "Agricola's Line of March from Chester to the Solway."

Mr. R. S. Ferguson, at the close of the paper, said in reference to the route taken by Agricola Mr. Jackson and himself were quite in accord. He referred to the existence of a Roman camp between Mowbray and Allonby, and another at

Silloth, which had been destroyed by the sea, and stated they would find Old Carlisle the centre of a complete system of military roadways. He could not help thinking that the military power of the Romans was centred at one time in Old Carlisle, and that afterwards they found the present Carlisle a more suitable place, and removed their seat of power to Stanwix. Old Carlisle appeared to be a centre of great importance in a strategic point of view, because from every point of it, like the spokes of a wheel, roads branched out, and at the end of every one of them was a camp.

Mr. Jackson next read a paper, written by himself, on the "Roman Camp at Muncaster," and another,—the joint production of the Rev. Canon Knowles and himself,—on "Walls Castle," which, the paper stated, stands a few yards to the north-east of the Roman Camp at Muncaster, and is about 52 ft. by 43 ft., but is clearly only the fragment of a larger building.

After the papers were finished, a few of those present proceeded in conveyances to visit Old Carlisle, and with this visit the excursion terminated.

MOVEMENT IN INDIA.

THE state of the Madras harbour works is beginning to attract the serious notice of the Local Government. The papers received by last mail state that the Hon. Mr. Ellis was returning from Coonoor, to meet Mr. Thoroughgood, the new engineer, on his arrival from England, and in his company to make an inspection of the groyne, the railway rolling stock, and the quarries. It was expected that the Duke of Buckingham would himself inspect the works later in the month, and it was also rumoured that Sir Andrew Clark, the Public Works Minister, would visit Madras in the cold season, and thoroughly investigate the state of the undertaking on behalf of the Government of India.

A proposal to establish an Institution of Civil Engineers for India was discussed at a meeting recently held in Calcutta, when a resolution was passed to the effect that the meeting being of opinion that the establishment of an institution was desirable, it should be open to all engineers of reputation, whether in the Public Works Department or not, to consider and report how effect could be best given to this intention.

The sanitary improvement of Simla, for which the Home Government lately sanctioned an expenditure of ten lakhs of rupees, is said to be still as far off as ever. The scheme now awaits the authorisation of the Viceroy, which rumour represents him as unwilling to give. A local journal says if the financial difficulties of the Government were not so great the Viceroy would start the sanitation works, if merely for the sake of the permanent population of Simla without prejudice to the question whether the Government should go elsewhere. And if he felt sure that no other hill station would answer as a seat of Government, he would probably start the works in spite of his financial embarrassments. As it is, however, the two motives for hesitation tend in the same direction, and nothing is done.

The Duke of Buckingham, governor of Madras, has purchased a house at Ootacamund for a gubernatorial residence; and strong parties of sappers and surveyors are employed making out the grounds, tracing roads, and rendering the edifice and its surroundings suitable for their future destiny. The business dwellers in the cities of the plains do not regard such doings as these and those at Simla with much favour, and grumble loudly at the preference their highly-paid viceroys and governors nowadays display for their Indian Capuas.

Sir Dinkur Rao is said to intend signalising himself by a great engineering work,—a sort of Indian Menai Bridge project,—the building of a bridge across the Paumben Channel to the island of that name. The South of India Railway would be carried across this bridge, and perhaps extended to the island of Ceylon itself. It is believed that the numberless pilgrims who annually flock to the shrine of Ramisweram would more than pay the cost in a very few years.

A paper factory designed to be worked by steam is being erected at Surat, and will, it is expected, be in full operation before the end of the year.

Falkirk.—New burgh buildings are to be erected at Falkirk, from plans by Mr. Alexander Black. The cost will be about 2,600*l*.

PROFESSOR DONALDSON.

ON the 2nd inst. died Matilda Georgiana, the beloved wife of Professor T. L. Donaldson, after many years of painful suffering most patiently borne. There is no member of the profession so widely regarded with affection as Professor Donaldson is, and many of our readers who knew nothing of Mrs. Donaldson will grieve because of the sorrow that has overtaken him. With that smaller number who, like ourselves for long years, have enjoyed the friendship of the admirable and estimable lady who has passed away, the sorrow will have additional poignancy.

IRON WELL-COVERING.

BRUCK, ON THE RIVER MUR.

BRUCK, on the Mur, is one of the oldest and most interesting places in Upper Styria. It appears to have existed since 861, when, as it is related, King Louis, the German, sent a proclamation to the city of Salzburg "from Bruck on the Mur."

Rudolph of Hapsburg raised Bruck to the dignity of a town in 1277. Many of the historical details concerning Bruck have been lost, from the ill-fate of the town, which has been so often destroyed that its chronicles have perished also. In the course of years this city has survived twenty wars and ten fires. Its position is extremely beautiful, being situated on the confines of the two rivers Mur and Mürz. Independently of its natural beauties, it possesses many interesting objects worthy of notice. Amongst the latter is the great iron well, the age of which is given in an inscription on it, which may be thus Englished:—

"In the year 1620
By my good town
Was I formed."

On the south side of the well can be read in German,—

"I, Hans Prasser,
Drink rather wine than water,
Did I drink water so gladly as wine;
So should I a richer Prasser be."

And then in another place,—

"Therefore have I been dug,
That all a big draught can have,
And may drink freely of me."

Looking beyond the Iron Well is seen on the horizon the historical "Rennfeld." From Rennfeld we have a surpassingly lovely view of the river Mürz and the peaks of the Upper Styrian range of mountains.

History relates that the Knights of Stubenberg and Kneuring, with their followers, went up to the Rennfeld, 4,800 ft. high, in order to throw themselves down between the highest points of the mount to break their necks, out of desperation, through unrequited love for Agnes of Bernegg, beloved by both of them.

Near the well stands the old palace of the Archduke, now a private dwelling-house. It was built in the year 1390. Archduke Ernest, styled the Iron Duke, was its builder. Inside the palace are shown the remains of a small chapel of the same period. A large hall, in which the state councils used to be held, still remains. Added to the well and the Duke's palace, a third object worth noticing is the iron door of the sacristy of the town church. This must be as old as the well. At the Exhibition of Vienna, in 1873, this held a prominent place in the "Pavilion of Amateurs," and excited great attention and admiration.

THE YARMOUTH AQUARIUM.

ANOTHER aquarium has been added to the present list. On Tuesday last the Yarmouth Aquarium was, not ceremoniously, but publicly opened by Lord Suffield, who, at the beginning of October last, laid the corner-stone. The committee, or directors, boast of the wonderfully quick time in which the building has been erected. Had they given a little more time, thought, and taste, this last aquarium building might have been more remarkable for architectural character. Given a square space, a certain number of bricks, &c., and a certain amount of labour, and much may be done under the term of "mushroom growth." The present structure is a rectangular hall about 190 ft. by 90 ft., divided down the centre by ten iron columns, having from the top of each to the piers of the side walls iron girders, with intermediate girders from which flat arches spring, forming the ceiling of the hall and the roof. An effect somewhat of oppressiveness is given by the ceiling being so low (at a guess, about 13 ft. from the floor). Between the piers of the side walls are the tanks,—eleven openings on each side: over each is a semicircular arch from pier to pier. At each end of the hall is a tank (rather small) for crocodiles, and one for seals, with rockwork, by Mr. Wills, of South Kensington.

The principles adopted in the construction and management of the Aquarium are stated to be those enunciated by Mr. Savile Kent, formerly of the Brighton and Manchester Aquariums.

A corridor reached by a few steps at the north end divides the hall from the *restaurant* and the reading and assembly rooms. A small and too narrow (less than 3 ft. wide) stone staircase leads to the rink, which forms the roof of the whole building, making a large open space surrounded by a stone balustrade, plenty of sea-view, and, without doubt, at times, a great deal too much wind for the comfort and safety of the rinkers.

The exterior of the building is brick and stone, divided into piers and semi-arches, similar to the interior, and surmounted with a stone cornice and balustrade. For particulars and further description of the tanks, water-supply, heating, lighting, &c., we refer our readers to the architect's own words at page 560 of our present volume. The interior being in an unfinished (and very wet) state on the opening day, it would be hard to say what appearance the hall will have when decorated, as it is intended to be. We missed observing where the lavatories and retiring-rooms were placed. A handsome luncheon was given to the visitors, and some speeches were made.

Messrs. Norton & Masey, of Old Bond-street, London, are the architects; Messrs. Aldin & Son, of Kensington, the builders; and Messrs. Leete & Co., London, have constructed the machinery and fittings. The heating apparatus is by Messrs. Bacon & Co. Mr. Kingham, Notting-hill, has charge of the restaurant. The total cost thus far is said to be about 35,000*l*.

The Aquarium, if properly managed, as we have no reason to doubt will be the case, can scarcely fail to prove a valuable institution for Yarmouth.

CONDITION OF LYME REGIS, DORSET.

SIR,—Your correspondent "Solo" has modestly described this town as being "one of the prettiest watering-places on the South Coast." My father prefers it to Naples in summer for its English beauty and oceanic freshness.

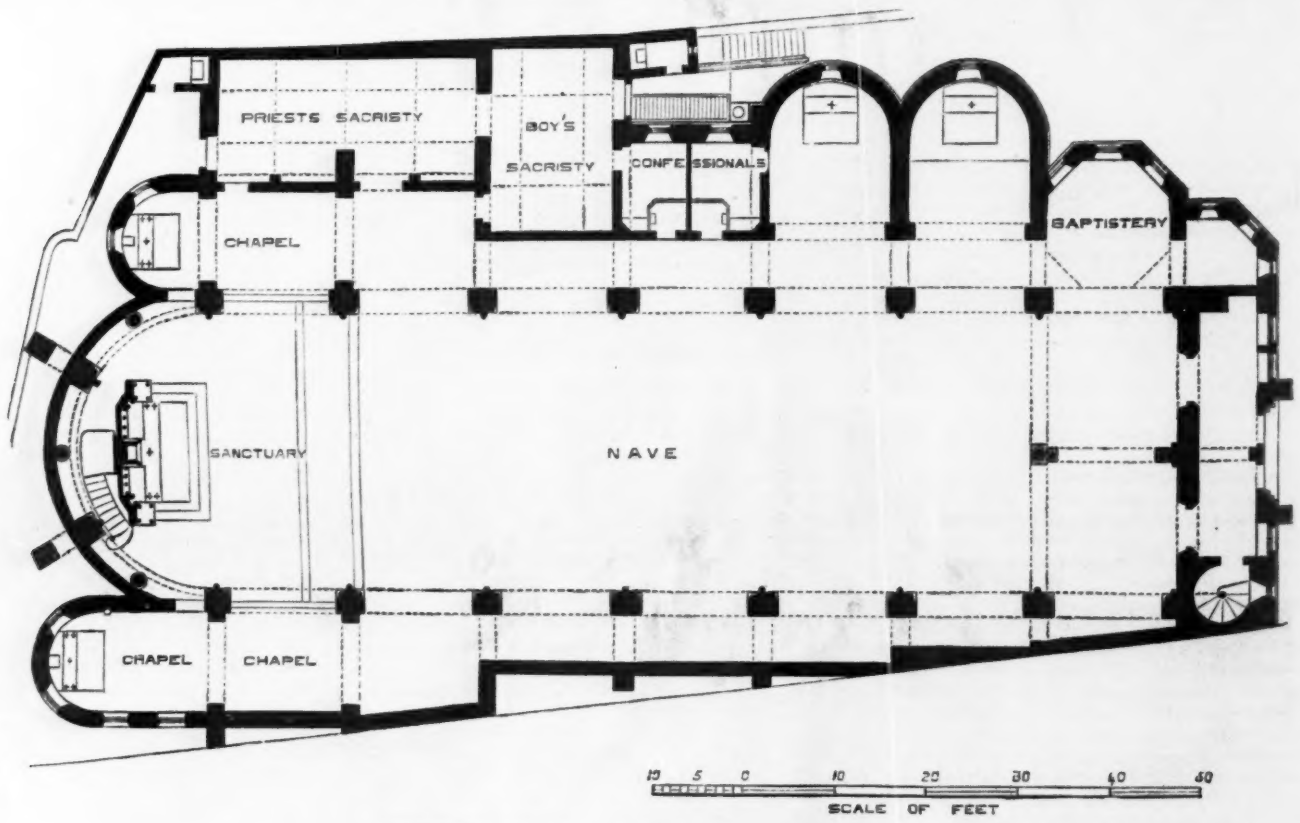
"Solo," however, errs in attributing the "fearful state" of Lyme Regis to the want of draining, and to overcrowding. That "fearful state" has been induced by the gases generated in the ruination of the eastern foreshore to feed the kiln on the other side of the harbour. The shales left to the sea action, decomposing it, enshroud the lower town in the mephitic airs, the sulphuretted smoke of the cement works westward as surely asphyxiating the villas above them.

Of course, my father has denounced the nuisance; and all the more indignantly since, in addition to the annual holocaust of really poisoned victims, many labourers have been killed under the cliffs, so that homicide lies charged to those whom the corporate negligence excused in employing them. I will only add that, in the event of what has been hitherto called an "accident," we shall consider it as murder, and hold the principals liable to all the consequences.

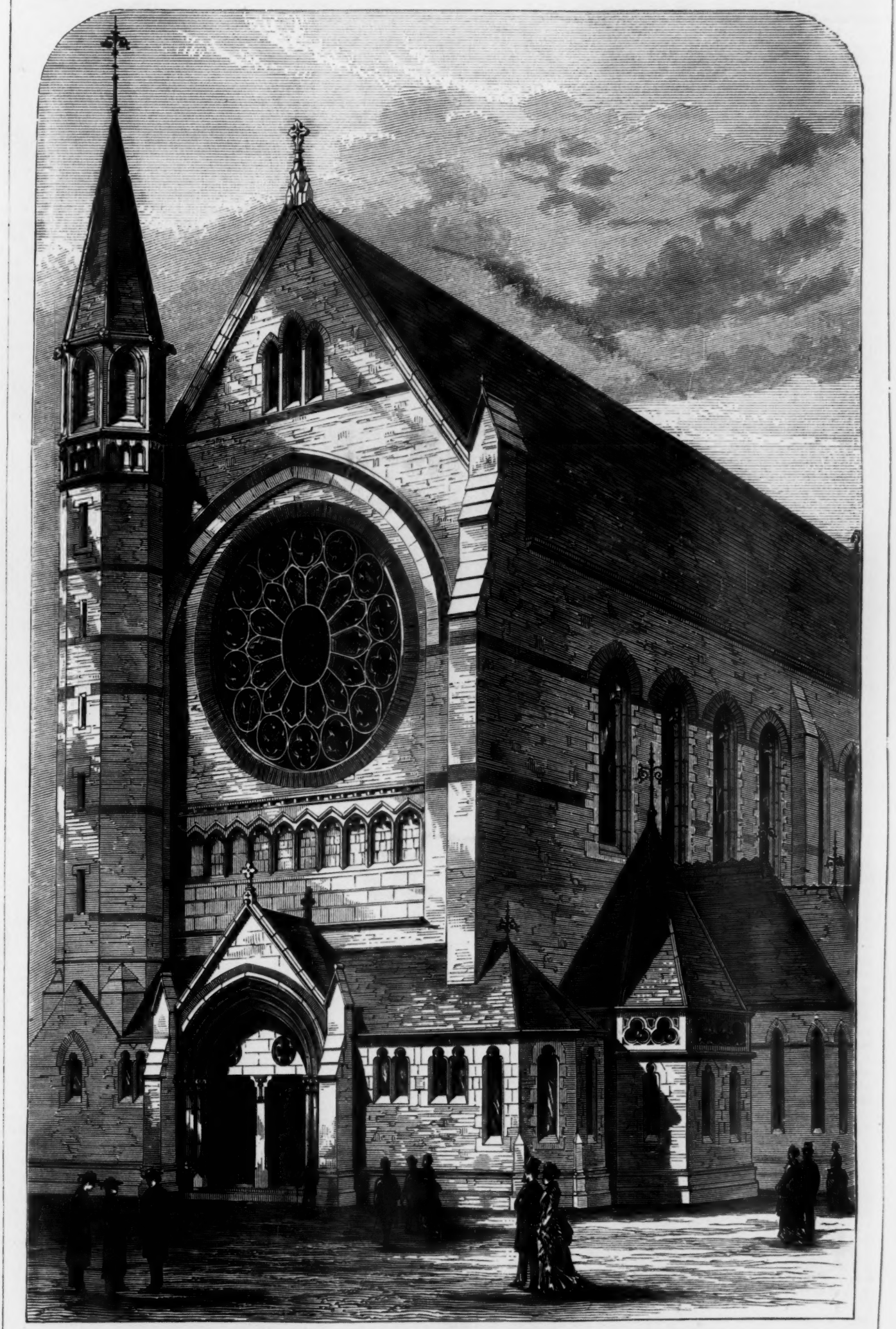
F. S. B. HAWKINS.

Distress amongst American Workmen.—A New York correspondent, writing on August 19th, says:—"As to trade in and around this city, a pretty good knowledge may be obtained from the state of affairs in Newark, N.J., which is the centre of important industrial interests. One of the leading journals of that town stated this week that never in the history of this city has such wide-spread poverty and distress been known to exist among the families of working men as during the present summer. A competent judge estimates that in Newark, Belleville, Bloomfield, and the Oranges, fully 4,000 skilled mechanics are out of employment, or work but two days in the week." A special despatch to the *New York Times* from Philadelphia, dated August 18th, says that 20,000 persons are out of employment, and large firms are discharging operatives every week.

IRON WELL-COVERING, BRUCK, ON THE RIVER MUR, STYRIA.——DATE, 1620.



CHURCH OF ST. ALOYSIUS, OXFORD.——*Plan.*



THE JESUIT CHURCH OF ST. ALOYSIUS, OXFORD.——MESSRS. HANSOM, ARCHITECTS.

THE JESUIT CHURCH OF ST. ALOYSIUS, OXFORD.

AT the end of last year a new Roman Catholic church, which has been erected in St. Giles's, a few yards to the south of the Radcliffe Infirmary, was opened with great ceremony. Of this we now give a view of the exterior and the plan. The church was erected by the Jesuit order, and is dedicated in honour of Saint Aloysius. It is a lofty and imposing building, plain and simple in its plan and main outline, and of the Early English style, with a few semi-Norman details. It is 122 ft. long, 45 ft. broad, and 57 ft. across the transepts, and 57 ft. to the ceiling ridge of the panelled wagon-headed roof, and is lighted by a series of large windows in the clearstory, rising above the arches of the nave. There are two side chapels, each of which have an altar of its own, one being dedicated to "Our Lady and St. Joseph," and the other to "The Sacred Heart." In the side aisles are an outer and an inner vestry for the clergy, choir, &c., and also two or three confessionals. The High Altar, which has been made abroad, is the gift of the Marquis of Bute. The church stands west and east, not east and west, owing to the exigencies of the site, and it will ultimately have attached to it a presbytery, as a residence for the officiating clergy, who at present will live in a house close by, facing the street. The mission itself, like that hitherto existing in St. Clement's, is in the hands of the Jesuit body. The cost of the building was upwards of 7,000*l*. The architects were Messrs. Hansom, of London; and the builder was Mr. C. Claridge, of Banbury.

BRISTOL AND GLOUCESTERSHIRE ARCHÆOLOGICAL SOCIETY.

THIS Society, which was inaugurated in April last at Bristol, held its first annual meeting at Gloucester a fortnight ago. The proceedings commenced on Wednesday, the 23rd ult., when the Mayor of Gloucester received the members (who mustered in strong force) at the Shire Hall.

The report of the Council, read by Mr. P. Hallett (general secretary) stated that at present the number of members of the Society was 466. The balance-sheet was satisfactory, the receipts, including composition payments for life members, being 672*l*. 10*s*. 6*d*., leaving, after payment of inaugural expenses, a balance of 572*l*. 14*s*. 9*d*.

Mr. C. J. Monk, M.P., moved that the report of the Council and the rules as amended be adopted.

Mr. S. S. Marling, M.P., seconded the resolution, which was unanimously agreed to.

Mr. W. K. Wait, M.P., then submitted that the Society's scheme as revised be adopted. He said that he thought in such a county as Gloucester they would have ample work for the Society for many years to come.

Mr. A. J. Stanton, M.P., seconded the resolution, and it was carried.

The President (Sir William Guise) then delivered his inaugural address, in the course of which he said:—The present is not the first attempt which has been made to form an archæological society for this county. About thirty years ago such a society was set on foot, of which I had the honour to be chosen president. Our number was not great, but amongst us were several accomplishd antiquaries, of whom I may name the late Mr. Thomas Phillipps, Rev. Samuel Lysons, Mr. Niblett, Mr. Gomonde, of Cheltenham, and Captain Bell, of the same place; but we met with little support or encouragement, and after an existence of a few years, we dissolved by mutual consent, when the antiquarian element became absorbed in the Cotswold Naturalists' Field Club, in whose printed "Transactions" will be found many valuable memoirs in connexion with the antiquities of this county. The newly-constituted society, the first meeting of which we are here assembled to celebrate, had its origin at Bristol, after the visit to that city of the British Archæological Association in 1874, when a proposal was made to form an association for the investigation of the antiquities of our county on the model of those already established, and doing such good work, in the adjoining counties of Somerset and Wilts. A provisional committee was named, having at its head the Earl Ducie, lord-lieutenant of the county, which speedily drew together such a number of adherents as to justify the calling a public meeting in connexion therewith. The meeting took place in April last, and was attended by a large and influential body of supporters. The Society was then duly constituted, laws were voted, a governing council appointed, and I was honoured by being called to the chair as your first president. This our county of Gloucester offers special attractions to inquirers in the field of archæology. It has from the earliest times of which we have any record been a battlefield for contending races,—Briton, Roman, Saxon, Dane, and Norman have in turn striven for the mastery over our hills and valleys, and have left behind them those traces, more or less enduring, which it is the delight of the antiquary to follow up, and concerning which it is the special aim of associations such as ours to collect and register, while yet we may, those remaining facts and evidences which time and cultivation and the hand of man are year by year obliterating. It is only within the last forty years or so that archæology,—the scientific study of antiquities,—has been pursued in a systematic manner by large bodies of inquirers associated for a common purpose. Before that time we had noble examples of individuals who devoted their lives and their means to that end, and have left behind them invaluable records of their labours,—invaluable because since they wrote wholesale destruction has been going on amongst the objects which they loved; some of the sites described and figured have been entirely obliterated, while others, if not wholly destroyed, have been so mutilated that scarcely a fragment of the original structure remains. It is to the labours of such men as Stukeley, Dugdale, Lysons, and others, that we are indebted that so much of the past is preserved to aid the researches of those who have come after them. At the present day it is far otherwise. Increase of wealth and leisure has given a vast impetus to scientific inquiry, and numbers now combine all that means and mind can effect to place within the reach of all, by publications, that knowledge which previously could only be attained after much laborious inquiry by the few. What stores of literary wealth have been opened up by the two great London archæological societies, and by others such as our own, which are widely disseminated through the provinces! But of all the sources of historic knowledge which learning and liberality have combined to set free, there is none that can compare in value to the historian with the magnificent series of volumes published at the national cost by the Record Office. Of these I would especially direct attention to the splendid folio entitled "Monumenta Historica Britannica, or Materials for the History of Britain," which constitutes in itself a complete library of all that has been written concerning our island from its first invasion by Julius Cæsar to the period of the Norman Conquest. It is edited by Thomas Duffus Hardy, the keeper of the records, to whose learning and research it does infinite credit. In respect of county histories Gloucestershire is very deficient. Sir Robert Atkyns is still, on the whole, the best authority. His first edition was published in 1712, in folio; Rudder, a printer of Cirencester, published another folio about 1740. Fosbroke published two vols. in 4to., which, though meagre, supply some deficiencies in the two former; and lastly, Archdeacon Rudge published 2 vols. 8vo. in 1806. Bigland's collection in folio was never completed, though some parts of a continuation were printed by the late Sir Thomas Phillipps. A new county history is greatly needed. . . . . Prior to the arrival of the Romans, the earliest races which have had a footing in our county have left behind them traces of their occupation in tumuli, grave-mounds, and earthworks, scattered abundantly over the Cotswold hills. The earliest form of burial appears to have been that of a body doubled up under a mound of earth; the next a round tumulus, with a cist in the centre; and, lastly, the long heart-shaped barrow constructed with dry walling, and containing chambers variously arranged. Of the first and rudest kind, examples have been recorded as occurring at Cowley, in this county, and at the entrance of Lord Bathurst's park, near Cirencester. In this class of sepulture there is no trace of cremation. The next race appears to have been a long-headed race, standing 6 ft. high and upward, with skulls unusually large and thick; these likewise were usually buried in a sitting posture in a cist formed by flat stones and dry walling. Such a tumulus was found in a field near Brockhampton. The long heart-shaped barrows are the most common. That at Uley Bury is large and in good preservation. Tumuli abound on the hills around Stroud. At Rodmarton a very perfect example was opened a few years since by the Rev. S. Lysons, one of the chambers of which was found to be filled with human bones; there were no marks of cremation. But perhaps the most remarkable of the long barrows of the Cotswolds is that of Belas Knap, near Winchcomb. The skulls removed from this barrow are in the museum of Cheltenham College. A paper descriptive of this tumulus was contributed to the Society of Antiquaries by its discoverer, Mr. L. Winterbotham, of Cheltenham. . . . A volume might be written on the Romans in Gloucestershire. It must suffice at present to glance at some of the more prominent features connected with their occupation. Glevum (Gloucester) and Corinium (Cirencester), called likewise "Durocornovium," were the chief military centres of the Romans in this country, of which Corinium was the principal,—three of the great roads meeting at that point, whereas only one, the Ermin-street, connected Glevum with Corinium. In connexion with these were numerous vicinal ways communicating with a stong chain of camps and posts, which, established on prominent points of the Cotswolds to the number of eighty-four (as lately enumerated and described by Mr. G. F. Playne in the Transactions of the Cotswold Field Club), served to keep in subjection not merely the dwellers on the hither side of the Severn, but by a system of posts and signals to overawe the restless tribes on the other side of the river. Remains of the country residences of the luxurious people have been found in many localities throughout the county, of which the most extensive and best preserved were found at Whitcomb, at Woodchester (described by Lysons at Cirencester), and one of the best preserved of all was discovered a few years since on the property of Lord Eldon, near Chedworth, on the line of the Foss-way. Records of these monuments are to be found scattered through the pages of the "Archæologia"; the "Transactions" of the Archæological Institute and Association, and in those of the Cotswold Field Club; in the fine volumes of Lysons; and in a beautiful volume on Corinium, published some years ago by Professor Buckman and Mr. C. Newmarch. Passing to later times, the old monkish historians and the "Saxon Chronicle" give us a confused history of invasion and retreat, battle and bloodshed, which seems to have lasted with longer or shorter intervals of rest down to the time when William the Norman came in and crushed all under the iron heel of his great feudatories, whose castles and strongholds soon covered the land. Relics of this Norman period are to be found everywhere throughout the county, especially in ecclesiastical buildings; and it is not a little noteworthy, as indicative of the populous condition of the Cotswolds in the eleventh century, that there is scarcely a church in the most sequestered village of that district that does not exhibit some traces, sometimes very considerable, of Norman work in its construction. . . . . It is in the power of every man of education, in his own way and amid his own surroundings, to aid in lifting the veil of obscurity from the past, and to gather such new facts as may serve to elucidate history, and to preserve from perishing those ancient customs, traditions, and forms of speech which yet linger amongst us. And here let me add a word upon a purpose not the less useful which such a society as ours may subserve; and that is in respect of its office and power of protecting and preserving those ancient monuments which still remain to us. I have always seen reason to regret that the sensitiveness of landed proprietors in whose guardianship these invaluable relics lie, availed to throw out the moderate and well-considered measure introduced by Sir John Lubbock into the legislature for the protection of such monuments. May we not hope that even in this direction societies such as ours may help to prepare the territorial mind to accept at no distant date a measure so much needed, and one which will prove welcome to all who value historical relics at once so precious and so perishable? An important aim, which we should keep in view, should be the formation of an archæological museum for the county, one in which every object of antiquarian importance discovered in the county should find its proper place.

The Bishop of the Diocese proposed a vote of thanks to the president, "for the first proof of his ability in occupying the chair."

Professor Rolleston seconded the resolution.

The resolution having been cordially adopted,

the president briefly acknowledged the compliment paid to him, and expressed his thanks to the Mayor of Gloucester for the use of the Shire Hall and his presence among them.

The members, leaving the Shire Hall, under the guidance of Mr. John Bellows, proceeded to trace the old Roman wall of Gloucester, past the Cathedral Gardens, across Northgate-street, up St. Aldate-street and King-street to Eastgate House, where some portions of the wall can be inspected; thence along Constitution-walk, where the members branched off from the Roman wall and inspected the Roman pavement in the bonded vaults by the Greyfriars. They also visited the Greyfriars, the Crypt Church, and Blackfriars, thence following the Roman wall again through Commercial-road, Barbican-road, to the Westgate in front of the Shire Hall. Afterwards they proceeded to the Cathedral and examined the building, under the guidance of Mr. J. D. T. Niblett and Mr. F. W. Waller, and on their return towards the Bell Hotel, passed up Westgate-street, and visited Mr. Johnstone's house, the Cellar at the Fleece Inn, Mr. Wyncoll's house, the New Inn near the Cross in Northgate-street, and Mr. Clark's house near the Bell Hotel, in Southgate-street.

In the evening there was a dinner, well attended, at the Bell Hotel, the chair being taken by Sir William Guise.

On Thursday, the 24th ult., the members, to the number of about seventy, proceeded in breaks and other vehicles to visit the ancient church of Deerhurst, the site of the battle of Tewkesbury, and the Abbey Church. Deerhurst Church is often spoken of as an Anglo-Saxon structure. It was restored fourteen years ago. In the eighth century, according to the historians, one Almeric had a palace at Deerhurst, and dying, his brother Dodo, a great Mercian nobleman, built and founded a monastery and church here. The monastery appears to have been a pleasant place. The church was destroyed by Canute the Dane, and a little island, which formerly existed in the river at this place, was the supposed scene of the combat between Canute and Edmund Ironsides for the possession of the kingdom. The church was rebuilt by Edward the Confessor in the Norman style, and then consisted of an apse, transepts, and one aisle. At some later period side aisles were added, and the Puritans altered the original shape still further by destroying the apse. The piers and arches have also been changed into Early English, the former having detached shafts. The tower had at one time a spire, but this fell in 1666. When the church was restored, all the features of it, ancient and modern, were preserved. Many of the peculiar features of the edifice were noted with interest by the visitors, who, however, did not, as might be supposed, find inscriptions

> "Such as, when legible, were never read,
> But being cankered now, and half worn out,
> Craze antiquarian brains with endless doubt."

The Rev. Mr. Butterworth, the vicar, read an interesting paper descriptive of the structure, which, he said, was in all probability the oldest ecclesiastical building in the county. He traced the history of Deerhurst, and said that in the beginning of the eighth century a priory was founded there by two brothers, named Oddo and Doddo. Edmund Ironsides and Canute signed a treaty of peace at Deerhurst, and the priory was destroyed by the Danes. Absolute proof that the church was rebuilt in 1056 they had not, but they had good *primâ facie* evidence that it was, and Mr. Parker said he believed it to be one of the earliest-dated of English churches. The most ancient portion of the church was the tower up to a certain height, the side walls, and the present chancel; and traces of its Saxon origin were to be found in a unique treble-light triangular window in the east wall of the tower, looking into the church; in the rude carved capitals of the chancel archway, now blocked up; and in some massive doorways, also blocked up, in the north and south walls of the chancel.

Sir W. Guise expressed the thanks of those present to Mr. Butterworth for his admirable paper. He described the peculiar architecture of the edifice as Romanesque, and not as Saxon and Norman, for, as Mr. Freeman would contend if he were there, there had been no break in the continuity, the imitation of the Roman being carried on to Saxon times, and by the Normans still further. He pointed to the peculiar character of the chancel arch, which bore unmistakeable traces of great antiquity, resembling the arch seen portrayed in some Saxon illuminations; but it was impossible to fix the exact date. Again entering their carriages, the company were conveyed to Tewkesbury Park, the seat of Mr. Sargeaunt, where, on the site of the battle of Tewkesbury, the Rev. W. S. Symonds read a paper on "Records of Tewkesbury and its Battle Field."

On reaching Tewkesbury the company were entertained at luncheon by the Mayor of Tewkesbury, Mr. A. Healing, in his grounds adjoining the Abbey.

Tewkesbury Abbey was then visited. The building is now in process of restoration, a wooden partition dividing the untouched part from that which is in the hands of the workmen,—the eastern portion of the church, which it has been decided to restore first. In this restoration the first thing to be done was to clear away from the choir and transept the whole of the galleries, pews, &c. Next followed the cleaning of the walls of the choir and triforium from the whitewash which had long overlaid them and obliterated marble columns and delicate carved work. The same has been done with the first two bays of the nave. The vaulting of the chapels and ambulatory has also been cleared of whitewash and repaired. The ceilings of the north and south transepts have been almost entirely renewed, and the ancient decorations in red and gold reproduced. Some interesting discoveries were made in opening what has been called the Chapter House, on the north of the north transept, and which had been blocked up by a wall, made up of fragments of plain and ornamental masonry. When the present contract is completed the work of restoration of the remaining portion of the edifice will be proceeded with as funds will permit. The Rev. J. H. Blunt read a paper descriptive of the building (see p. 876, *ante*), and of the tombs and monuments it contains.

At the evening meeting, Mr. F. W. Waller, in the absence through indisposition of his father (the cathedral architect) read a paper on the Crypt of Gloucester Cathedral, premising that this was the portion of the building on which perhaps less had been written than on any other, and no correct drawings had hitherto been made of it. The writer continued,—"Many and various have been the opinions put forth as to the date of the crypt; amongst others it is no uncommon thing to hear it spoken of as being Saxon, again as being Norman of a much earlier character than the superstructure, and, indeed, as being part of a former church. My object in writing this paper is to endeavour to disprove these theories, and to establish for the crypt a history coeval with the Norman work which rests upon it, all of which I believe to have been built at one and the same period. As regards the 'Saxon' theory, there may be stones in this building which at one time may have formed part of a Saxon edifice, but if such do exist they are carefully concealed. I can see no vestige of Saxon work whatever in any part of the Cathedral, below or above ground." After stating clearly the grounds of his opinion, the writer said,—"After a careful examination and study of the whole subject, I am led to believe that the crypt is of the same date as the two stages of Norman work above it."

Mr. Waller afterwards called attention to the wholesale destruction wrought in many of our churches under the name of "restoration," and as he believed the effect of the new society might be to a great extent to check the pulling down of old buildings unnecessarily, he suggested that a consulting committee of the Society be appointed, who shall form a sort of court of appeal, and whose duty it shall be to advise upon all work submitted to them and proposed to be taken in hand, such committee to be formed of men of acknowledged taste and experience, whose opinions may be safely taken, and who from the interest they have in the matter would probably visit any building about to be interfered with. He believed that such a step would be of immense service in preventing destruction. The fear of publication would act strongly on evil-doers, as he had himself prevented many an enormity by the following remark:—"If the archæologists hear of it your name will be in every newspaper in the county."

The chairman said he entirely sympathised with Mr. Waller's suggestions as to "the horrible system of church restoration." When the original Gloucestershire Archæological Society existed he (Sir William Guise), Sir T. Phillips, and others visited Elmstone Church, which was being restored. The men were scratching away at the walls, and they came upon a figure. Sir Thomas expressed a hope that this would not be destroyed, whereupon a middle-aged female in the church asked, "Pray who are you who are laying down the law in such a manner?" They told her they belonged to the Archæological Society, and inquired who she was? She replied, "I am the clergyman's wife, and I am not going to have any of your Popish ways here; I'll have you out of this before the week's over!" Sir William said he was horrified at the way some churches were furbished up, and all their traces of antiquity completely destroyed.

Mr. G. F. Playne was to have read a short paper on "The Recent Destruction of a Gloucestershire Menhir." In his absence Sir W. Guise read it. This was followed by a paper entitled "Annals of Ashdown in the Twelfth Century," by the Rev. Dr. Smithe (read, in the absence of the writer, by the Rev. Hugh Fowler). Mr. Phillimore read papers "On Public Opinion at Gloucester at the Time of Threatened Invasion in 1745"; and "Short Note about Merchant Marks of Clothiers at Uley and Cam." The concluding paper was by the Rev. E. A. Fuller, "On the Sums raised in the various Parishes of Gloucestershire, of the Devotion of the People for Aid and Defence against the Turks, A.D. 1544."

The closing meeting was held on Friday, the 25th ult., in the Shire Hall, when the president congratulated the members present on the success of the meeting.

The members afterwards proceeded to Berkeley, to make an inspection of the castle. Under the guidance of Mr. J. H. Cooke, they spent two hours pleasantly in the castle and church. This closed the meeting.

"WHEN AND BY WHOM WERE STONEHENGE AND ABURY ERECTED?"

THIS was the question asked by Sir John Lubbock in his address at the opening of the Wiltshire Archæological Society's Congress at Salisbury on the 23rd ult., and thus he answered it as regards Abury:—History is entirely silent. Stonehenge, with the exception possibly of allusion in Hecatæus, is unmentioned by any Greek or Roman writer; nor is there any reference to it in Gildas, Nennius, Bede, or in the Saxon Chronicle. Henry of Huntingdon, in the twelfth century, alludes to it with admiration, but expresses no opinion as to its date or origin. In the same century, Geoffrey of Monmouth, who in the words of Dr. Guest, "is everywhere found darkening the pure light of our early history," gave to the world that which some call an historical account of Stonehenge, namely, that it was erected in the fifth century, to commemorate the treacherous murder of the British by Hengist. The stones are said to have come from Africa, whence they were transported by giants to the plains of Kildare; and thence by the enchantments of Merlin, carried to Salisbury Plain. The question has been well discussed by one of our members, Mr. Long, in his recent work on "Stonehenge and its Barrows," in which he has usefully brought together our present information on the subject, and I will therefore only add that, for my own part, I look upon the account given by Geoffrey as altogether mythical. It is remarkable that the source of the small inner stones, which, as Stukeley first pointed out, are of a different material from the others, is still uncertain, but the large ones are certainly "Sarcen" stones, such as are still shown in many places on the Plain. The best evidence as to the age of Stonehenge seems to me derivable from the contents of the tumuli surrounding it. Within a radius of three miles round Stonehenge there are no less than 300 tumuli; which is, I need not say, a much larger number than are found anywhere else within an equal area. We can hardly doubt, I think, that these tumuli cluster round the great monument, or, at least, that the same circumstances which led to the erection of Stonehenge on its present site, either directly or indirectly, led to the remarkable assemblage of tumuli round it. Now, 250 of these tumuli were opened by our great antiquary, Sir Richard Colt Hoare, and are described in his "Ancient Wiltshire." If these belonged to the post-Roman period we should naturally expect to find iron weapons, and especially knives, coins, well-burnt pottery, and other relics characteristic of the period. Is this so? Not at all. The primary interment was not in any case accompanied by objects of iron, while in no less than thirty-nine cases bronze was present. We have then, I think, strong grounds for referring these monuments to the Bronze Age; and if this be true,

of Stonehenge, it probably is the case with Abury also, which seems decidedly more archaic, the stones, for instance, being rough, while those of Stonehenge are hewn. Now when was the Bronze Age? And what do archæologists mean by the Bronze Age? I ask this question because, though it has been repeatedly answered, there is still a great misapprehension even in the minds of some who have written on the subject. By the Bronze Age, then, we mean a period when weapons were made almost entirely, and ornaments principally, of bronze; that is to say, of copper and tin; gold being rare, iron and silver still more so, or even unknown, as was also the case with coins and glass. Some archæologists, indeed, have considered that the bronze swords and daggers which characterise the Bronze Age are really Roman. This question has been much discussed, and I will not now enlarge on it, but will only say that in my judgment these arms are not found with Roman remains, and that the Roman weapons were made of iron, the word "ferrum" being synonymous with a sword. On this point, I have taken some pains to ascertain the opinions of Italian archæologists. Bronze swords, daggers, &c., occur south of the Alps, the very patterns being in some places identical with those of Northern Europe. But I believe it may be asserted that no object characteristic of the Bronze Age has been found in a Roman tomb; none have been met with at Pompeii, and those Italian archæologists whom I have been able to consult all agree that they are undeniably Pre-Roman. If, indeed, the bronze swords and daggers were of Roman origin, they ought to be more numerous in Italy than in the north. Now, what are the facts? The Museum of the Royal Irish Academy contains no less than 300 swords and daggers of bronze. As regards other countries, M. Chantre, who has been collecting statistics on the subject, has been good enough to inform me that the French museums contain 409, those of Sweden (including poignards) 480, and of Denmark 600, while in Italy he knows of 60 only. These numbers seem to me to militate very strongly against the views of those who would ascribe these weapons to the Romans. When, then, was the Bronze Age? We know that iron was known in the time of Homer, which seems to have been, as regards the South of Europe, the period of transition from the age of iron to that of bronze. In the Pentateuch, excluding Deuteronomy (which probably belongs to a much later date) brass, that is to say bronze, is frequently mentioned, while iron is only alluded to four times. Coins were first struck about 900 B.C., as it is generally said, by the Æginetans under Pheidon, king of Argos, though Herodotus ascribes them to the Lydians. It is true that the use of iron may have been known in Southern Europe long before it was introduced in the north. On the whole, however, I am disposed to think that when iron was once discovered, its use would spread somewhat rapidly; and the similarity of form, of pattern, and of ornaments existing between the bronze arms and implements throughout Europe, seems to negative the idea that bronze was in use for such purposes in the north for any great length of time after it had been replaced by iron in the south. It is, however, more probable that many of our smaller Wiltshire tumuli belong to a still earlier period, namely, to the Neolithic, or later Stone Age, though it is not easy to say which of them do so. This is probably also the case with the large chambered tumuli in which as yet no metal has been discovered. As regards the Stone Age, the same word of caution is necessary as in that of Bronze. There are still some who deny the very existence of such a period, alleging generally as their reason against this proposed classification that implements and weapons of stone were used in conjunction with those of metal. This, however, no one denies. The characteristic of the Stone Age is not the presence of stone, but the absence of metal; and if the name were to be a definition, the period would be more correctly designated as non-metallic. That there was, indeed, a time when stone axes, knives, and javelin-heads were used in Europe, and when metal was unknown, cannot, I think, be for a moment doubted or denied by any one who has carefully looked into the evidence. These objects of stone, so well described by Mr. Evans in his excellent work on the ancient stone implements of Great Britain, are of the most varied character; mere flakes used as knives, scrapers for preparing skins, axes, adzes, hammers, gouges, chisels, arrow-heads, javelin-heads, swords, picks, awls, sling-stones, and many other forms; these, too, found not singly or in small numbers, but by hundreds and thousands, I might say tons of thousands, attest the important part which has been played by stone in the early stages of the development of the human race. . . . . It must be admitted, indeed, that our knowledge of the Stone Age is still scanty, fragmentary, and unsatisfactory; on the other hand, the stone weapons and implements found in Europe so very closely resemble those in use amongst various races of existing savages that they give us a vivid, and I think to a great extent accurate, idea of the mode of life which prevailed at that distant period; distant, indeed, it was according to the ideas of chronology which almost universally prevailed until within the last quarter of a century, for we can scarcely doubt that even the latter Stone Age goes back to a period more remote than the 6,000 years which were traditionally supposed to be the limit of man's existence on earth. No doubt, indeed, the difficulties of the received chronology had long been felt. Well-marked varieties of the human race are shown by the Egyptian monuments to have existed as early, at any rate, as the fifteenth century before Christ. The antiquity of man is also indicated by the differences of language and by the existence of powerful and flourishing monarchs at a very early period, for the pyramids themselves are considered by M. Mariette and other high authorities to have been constructed about 4,000 years B.C., and even at that early period it would appear that the Sphinx was suffering from age, for we possess a decree by which Cheops provides for its repair. Quitting now the Neolithic, or second Stone Age, we come to the Palæolithic, or first Stone Age. At this period man appears to have been ignorant not only of metals, but of pottery. The stone implements are much ruder, and are simply chipped into form, being never ground or polished. We have no evidence of the existence of any domestic animals, and man probably lived mainly on the produce of the chase, contending for the possession of Europe with animals which now exist only in distant regions, or have become entirely extinct. So unexpected were these facts, so improbable did they appear, that geologists accepted them only after reiterated and incontrovertible proofs.

THE RAILWAY LEGISLATION OF 1876.

DURING the session which has just closed, out of 136 railway Bills which came before the committees, 98 received Parliamentary sanction, whilst 38 were rejected. Of those Bills in respect of which Acts have been obtained, 13 were promoted by newly-incorporated companies for the construction of entirely new lines of railway, the aggregate length of which is 132 miles, and the capital required, 1,996,000*l*. The most costly of the new lines sanctioned, in proportion to their length, are the Caterham and Godstone Valley, and the Westerham Valley, the former being a little more than two miles in length, at an estimated cost of 160,000*l*., and the latter, three miles, and the estimated cost, 133,000*l*. Both these lines are in connexion with the lines of the South-Eastern Company, the one being from the South-Eastern station at Caterham to Godstone, and the other from the Sevenoaks and Tunbridge line of the South-Eastern Railway to Westerham and Oxted. Twenty of the Bills sanctioned were promoted by existing companies, for powers to construct additional lines and other new works, these several companies being authorised to expend in such works an aggregate sum amounting to upwards of 15,000,000*l*. Of this amount the Midland Company have received powers to expend no less than 3,900,000*l*. in new works of a varied character; the London and North-Western, 2,066,000*l*.; the Lancashire and Yorkshire, 2,000,000*l*.; the North-Eastern, 1,332,000*l*.; the Manchester, Sheffield, and Lincolnshire, 1,000,000*l*.; the Great Eastern, 640,000*l*., which includes, amongst other works, the conversion of the Bishopsgate high-level station into a goods station, and the construction of wharfs and quays at West Ham; the Great Western, 600,000*l*.; the London, Chatham, and Dover, 500,000*l*.; the South-Eastern, 600,000*l*.; and the South-Western, 320,000*l*. Perhaps the most important of the new projects for which Acts have been obtained is the London, Tilbury, Dartford, and Kent Coast Junction Railway, for connecting the South-Eastern line, near Greenhithe, with the London, Tilbury, and Southend Railway, by means of a tunnel under the Thames. This proposed line, which is a little more than twelve miles in length, is estimated to cost 680,000*l*.

Of the projects which Parliament refused to sanction, eight were for the construction of new lines, and one giving powers to the Metropolitan Company to extend their railway at the east end from Aldgate High-street, and at the west end at Hammersmith. The aggregate length of these several proposed new lines was ninety-seven miles, and their estimated cost 6,400,000*l*., the cost of the proposed Metropolitan extensions being 1,292,333*l*. They included amongst others, a project for making a line from the Tottenham and Hampstead Railway to the Crystal Palace, three miles in length, at a cost of 310,000*l*.; also a railway from the London, Tilbury, and Southend line at Grays Thurrock, passing under the Thames at Gravesend, to the London, Chatham, and Dover Railway. The intended line was a little more than seven miles in length, and its estimated cost 553,000*l*. Another of the unsuccessful projects was the West Riding and Lancashire Railways Bill, for making new lines between Manchester and various parts of Yorkshire. The length of this proposed line was thirty-seven miles, and its estimated cost 2,622,000*l*. The project underwent a protracted investigation before the Parliamentary committees, during which it was strongly opposed by the London and North-Western, the Lancashire and Yorkshire, the Midland, and other leading companies.

COMPETITIONS.

Bromley, Kent.—The Local Burial Board having invited five architects to compete for their proposed cemetery chapels, lodge, and mortuary, decided, on the 30th ult., to adopt the designs by Mr. George Truefitt, and they will at once be carried out. A premium of 15*l*. was awarded to Mr. J. Sulman, 10*l*. to Mr. George Raynes, 5*l*. to Mr. Mallett, and 5*l*. to Mr. Stenning.

Builth.—The Builth Public Hall and Market House Company recently advertised for designs for their proposed new buildings, and in reply received numerous drawings from architects resident in various parts of the country. After consideration, two designs were retained for final decision, and these were submitted to Mr. Williams, of Brecon, the county surveyor, who was called in to report upon their merits. The result is the selection of a design submitted by Messrs. Haddon, Brothers, architects, who are engaged to carry out the works forthwith.

SURVEYORSHIP ITEMS.

Wigan.—The death of Mr. J. L. Humber, C.E., borough engineer and surveyor of Wigan, is announced. Since his appointment in 1850 a complete system of sewerage has been carried out under his superintendence, and the Wigan waterworks were completed.

Upper Sedgley.—Mr. J. Bradley has been appointed surveyor to the Upper Sedgley Local Board and Urban Sanitary Authority, *vice* Hughes, resigned.

Woolwich.—At a meeting of the Woolwich District Board of Works on the 28th ult., Capt. Behenna suggested that a village cart and a pony should be purchased with a view of enabling the surveyor to ride round and look after the roads. There were thirteen miles of ground to look after, and they ought to be gone over twice a week. He moved that the matter should be referred to the Highway Committee. Mr. Hughes suggested that the surveyor should be supplied with a bicycle. Mr. Topley seconded the motion, as he thought a horse and cart might obviate the necessity of the surveyor procuring an assistant. Mr. W. C. Taylor referred to the motion as ridiculous and absurd, adding that the surveyor had a similar conveyance forty years ago, when it was the laughing-stock of the whole neighbourhood. Capt. Behenna withdrew his resolution.

An Engineer's Claim for Preparing Drainage Plans.—Mr. Baldwin Latham having taken legal proceedings against the Newmarket Board of Health to enforce the payment of his bill for surveying and preparing plans for the drainage of the town, amounting to upwards of 600*l*., an extraordinary meeting of the Board was held on the 28th ult., when it was unanimously resolved to settle the account forthwith.

SANITARY WORK IN RIPLEY.

THE sanction of the Local Government Board has just been obtained by the Local Board of the district of Ripley, in the county of Derby, for the borrowing of a sum of money for the construction of waterworks, and a system of sewerage in their district, according to plans prepared for the purpose by Mr. R. Argile, jun., engineer, of Ripley. That portion of the township of Ripley which is under the authority of the Local Board contains a population of about 6,000, consisting mainly of miners and iron-workers, and has been hitherto destitute of any efficient system of either drainage or water supply. Already a well has been sunk, near the western side of the town, to a depth of nearly 60 yards, and a boring carried to a further depth of about 5 yards, yielding a constant supply of 100,000 gallons of water per day, equal to over 16 gallons per head, which is considered to be in excess of present requirements, inasmuch as a number of the inhabitants are already tolerably well supplied from other sources, and there are scarcely any manufactures carried on in the place. A combined bucket and plunger pump, 10 in. diameter, made by Mr. John Borwell, of the Britannia Foundry, Burton-on-Trent, has been fixed in the well; and working drawings, &c., are now in course of preparation for reservoir and valve wells, engines, boiler, engine and boiler house, water-tower, cast-iron tank, and service-mains. The main reservoir will be constructed near to the well, and will be capable of holding 270,000 gallons, from which the greater portion of the district will be supplied by gravitation. For the supply of the upper portions a water-tower will be constructed, with a cast-iron tank upon the top, to contain 60,000 gallons.

As there is very little doubt that the yield of the well could be doubled by sinking to a greater depth, provision is made in the plans for doubling the pumping plant, and constructing a second reservoir alongside the first at any future time, should the increase of population render it necessary.

The town being situated upon the top of a hill is naturally divided, for drainage purposes, into two main divisions, north and south, the great bulk of the population being upon the northern side. It is proposed to dispose of the sewage by irrigation, for which purpose the Board have arranged to purchase about 31 acres of land on the northern side, and about 7½ acres on the southern, both sites being about a mile away from the centre of the town. An all but entirely new system of sewers will be required, which will convey the sewage by gravitation to the respective outfalls. It is probable that a portion of the sewage farms will be devoted to the growth of market-garden produce, for which there is a great demand in the immediate neighbourhood.

The total estimated cost of the water supply, including purchase of land, is 9,500*l.*; and of the sewerage, including purchase and laying out of sewage farms, 13,200*l.*

COWAN'S COMPENSATING STEAM-GENERATING APPARATUS.

WE have often asked why the heat evolved in the production of lime should be wasted. The apparatus we have named above shows one way in which it may be applied.

This apparatus consists in the combination of a steam boiler with a miniature lime-kiln, or with a furnace so constructed that lime is manufactured in it, whilst at the same time steam is generated in the boiler by the products of combustion arising from the stone and coal used in producing the lime, which is suitable for building or other purposes, and the quantity sufficient in many cases to cover the cost of the limestone and coal used, including that of producing the steam.

The apparatus promises to be valuable in cases where economy of working is the great desideratum, such as for pumping, driving stone-crushing machinery, and mortar-mills, or for contractors' use in the construction of railways, docks, and other works where large quantities of lime are required.

An Inventive Stonemason.—A working stonemason in Clevedon, Somerset, claims to have invented an instrument to "take the distance and height of remote objects without the previous labour of measuring a base line." The inventor is Mr. S. Reynolds, East Clevedon.

A RHYMING VIEW OF A RECENT CONGRESS.

THOSE who imagine that the pursuit of an archæologist is a dry one, may be led to think differently by perusing the poetic musings of an investigator who accompanied the visit of the "Institute" to the Eastern Counties in the early part of last month:—

A thirsty archæologist, from London's sultry streets,
I started Tuesday morning for Essex's cool retreats;
Where rippling Colne meanders thro' meadows green and wide,
And Colchester's old towers look down upon its tide.

I sing not now of Colchester, that ancient town and fair,
Nor of the glorious welcome we all encounter'd there;
Nor of the sumptuous luncheon our generous hosts had spread,
Nor how we spoke, and ate, and drank, before we went to bed.

To other archæologists I leave the stirring lay;
By other bards may be rehearsed the triumphs of that day;
My Muse restrains her pinions, nor dares the dizzy height,
For next day's doings well she knows will tax her strongest flight.

The sun was shining brightly on the auspicious morn
When past trim villages, and woods, and fields of ripening corn,
We blithesome archæologists were borne upon our way,
To talk and think, and eat and drink, and spend a happy day.

The first place we were bound for was Sudbury's pleasant town,
And when our engine halted we joyfully got down,
For 'twas said the mayor had pitied our long and weary ride,
And had kindly undertaken some refreshment to provide.

We went to see the churches three, and eke the ancient wall,
Then gladly march'd to our repast, served in the Public Hall.
Oh! fine that mouldering masonry, and fine those churches very;
But perhaps the *finest* thing was his worship's golden sherry.

But time (too quickly flying) now warns us to depart,
And so, in fly and omnibus, for Hedingham we start;
Sure, such a weight of wisdom, and such a bulk of brains,
Had ne'er before been carted o'er the fertile Essex plains.

And now the Keep of Hedingham is seen above the trees,
And on the Keep the crimson flag is fluttering in the breeze;
To questions why it flouts the sky, some clever sage insists
That crimson sheet is spread to greet us archæologists.

We wander'd round the castle ground, and up the winding stair,
And from the crumbled battlements survey'd the landscape fair;
But 'twas sadly hot and droughty work, and quickly we were fain
Our thirst to quench, with copious drench, of the good Squire's champagne.

I can't describe the luncheon: my Muse's feeble powers
Would ne'er suffice, e'en for the ice, and fruits, and ferns, and flowers;
But we ate, and drank, and toasted, within the castle grey,
Till half-past three announced that we must tear ourselves away.

Not long at Little Maplestead, our rolling wheels were stay'd,
Not long the tiny Templar Church our hurrying feet delay'd;
Earl's Colne was still before us, six weary miles or more,
And we felt we needed sustenance, and wish'd our journey o'er.

But soon or late all ills must end,—in an exhausted state,
At length, the travellers pull'd up at the good Colonel's gate;
A good Samaritan indeed! though, with perception fine,
He judged he might omit the oil, and only pour the wine.

But close at hand the Priory was nestling in the shade,
And there the "Alabaster Earls" in effigy are laid:
We rambled down, but as we found our time was nearly up,
We went at once into the tent and had some claret cup.

And now it seem'd our happy day was drawing to its close,
And we felt that, after all our toils, we needed some repose.
Ere we got back to Colchester twelve fleeting hours had sped,
So there we had a social glass, then gaily went to bed.

O Essex, queen of Eastern shires! thou hast my warmest heart,
As from thy kind and gallant squires reluctant I depart!
When next the Archæologists explore thy classic ground
May I, the thirsty one, among their ranks be found.

SANITARY MATTERS IN THE BRUSSELS INTERNATIONAL EXHIBITION.

AMONG the "exhibits" in the Sanitary Section of this Exhibition may be noticed several large wall maps and an extensive series of plans in albums and portfolios, which show the great amount of attention which is at length being given to sanitation in Germany. They are exhibited by Mr. Jos. Gordon, Mem. Inst. C.E., who, as a consulting engineer resident for the past ten years and a half in Frankfort-on-the-Maine, has been called upon to design and execute several important sanitary works, of a portion of which he exhibits the principal plans. They include a general plan, measuring 18 ft. by 9 ft., and drawn to a scale of 1 : 1250, of the sewerage works now being executed in Stuttgart, a town of 110,000 inhabitants. A descriptive pamphlet in German, which accompanies Mr. Gordon's exhibits, states that before the execution of the scheme as devised by him was definitely decided upon, his report was handed over by the authorities of the town, in February, 1875, to a commission, consisting of eleven members of the Württemberg Engineering Society, who subjected the whole to a detailed examination, extending up till May of the present year, when they presented a report recommending the adoption of the scheme. The Medical Society being also called upon in the same manner to report upon the scheme, declared that its execution would be of immense benefit to the sanitary condition of the town.

It would perhaps be interesting to have the opinions of English authorities upon this system of handing over the reports of eminent engineers to various societies for an expression of their opinion upon the merits or demerits of the proposals.

Plans of the proposed sewerage works of Hanau, Heilbronn, and other towns are also exhibited, and a very interesting portion of the plans refers to house-drainage, as carried out on model principles in Frankfort. Plans, sections, and details of the drainage of over thirty different establishments are shown, embracing almost every class of building, from a new Frankfort hotel, containing 280 bedrooms, to the various types of private dwelling-houses. There is also a portfolio containing eight sheets of drawings referring solely to the drainage of a Government powder-mill, and the dwelling-houses of the numerous officials. In all these plans the question of efficient ventilation and flushing receives full attention. All soil-pipes, as well as the down-pipes from kitchen-sinks, are carried through the roof, and in some instances, where unusually long lengths of private drains are needed, or where the available fall is less than 1 in 60, special means for flushing are also provided. The plans exhibited show the beneficial result of the system adopted in Frankfort since 1868 in the formation of a special house-drainage department in connexion with the Sewerage Works Office. All plans are examined by this department, and only passed after having been found in accordance with the very stringent regulations as to trapping, ventilation, gradients, use of iron pipes in special cases, &c.

This collection of plans forms a very complete series, and some regret may be felt that they are necessarily not in the British section.

NAIRN FREESTONE AND GRANITE QUARRIES.

A CORRESPONDENT of the *Inverness Advertiser* writes:—"Nairn is well known in most parts of the United Kingdom of Great Britain for its genial temperature and bathing facilities; but, as a stone-producing district, it has been hitherto comparatively kept in the background; its neighbouring towns of Burghead and Elgin, not to speak of Aberdeen and Peterhead, have attained more notoriety in this respect. But for many years Nairn has liberally supplied itself, as well as Inverness and other eastern and western districts, with a freestone of a pure white colour, and, if I mistake not, your own Caledonian Bank Buildings have been entirely built from its freestone. Remarking so to some of my holiday ramblers, who happened for the nonce to be residents in the Brighton of the North, which at the time I did not know, I was informed to my surprise that Nairnshire now-a-days produced much superior stone in the near neighbourhood of the Royal burgh. On further inquiry, I was told that this was a red granite, and to my further surprise they stated that a rich vein of it ran south of the valley of the Nairn, almost parallel with the freestone. I determined to make sure of this statement and gratify my own curiosity, and on arriving at the dilapidated village of Auldearn, on the road indicated, was surprised to find that all the stone dykes in the district testified to the truthfulness of my informants. It was soon to be seen that the hardy granite was in abundance in the locality. One of the natives of the village, of whom I asked whether there was a stone quarry in the vicinity, replied, 'Ou, ay, there's a grand quarry out at Kinsteary, and folk frae this toon work at it. It belangs to chiels at Inverness they ca' Davidsons; and if you want to see the warks gaeing on, ye'll be in good time, and they'll gie ye a' information.' Our informant directed us into the 'road we should walk,' and we soon

found the Kinsteary granite quarry; in fact, as geologists say, 'we stumbled on the parent rock.' On asking, of a well-informed sunburnt man who was hard at work in the bottom of the 'gully,' for the lessees, we were told none of them were there, 'but onything we wanted to ken, he wad dee.' In answer to queries, our intelligent workman told us that the Messrs. Davidson were the original lessees, and that the works were only commenced a few years ago. The specimens of the stones shown us were all that could be desired. The quarry is situated about three miles south-east of Nairn, and a new road has been constructed by the Messrs. Davidson from the village already referred to, in the direction of Cawdor. We saw during our short stay huge blocks blasted, some, we may state in passing, upwards of 30 tons in weight, and the process after blasting of cutting up the same into smaller fragments by 'plug and feather,' in sizes suitable for monumental and architectural uses at home and abroad. The colour of the stone is a beautiful bright red, and the mixture everything that could be desired in red granite."

PRIMITIVE DWELLINGS AND "BEEHIVE HOUSES" IN SCOTLAND.

DR. ARTHUR MITCHELL, in the third of his course of "Rhind Lectures on Archæology," delivered a short time ago in Edinburgh, noticed some rude forms of dwellings still to be seen in Scotland. He first described a type of houses in which many thousands of people were born, lived, and died in Lewis and Harris, and of which others were to be found in many other parts of Scotland. He did not dwell on the wretchedness of these dwellings, the absence of privacy and of the separation of the sexes, the presence of the cattle and human beings together, and the entire want of comforts. He desired only to fix attention on certain features of the buildings in relation to the present inquiry. First, the thickness of the wall, often 6 ft. or 7 ft.; second, the way in which it was built, two faces of dry stone with turf between; third, the very low door, often not 4 ft. high; fourth, the absence of any light-hole or window; fifth, the want of overlapping of the wall by the roof, so that such rain that did not simply wet the roof or fell through it, ran down the body of the wall. To this last point, more than even to any other, he would direct attention. If it were to be accepted as indicative of the intellectual state of the people, that state would be the very lowest. To show the ignorance of the principle of the arch would be nothing in comparison with this, and to suppose the arrangement as the outcome of ignorance and stupidity was to show a degree of ignorance scarcely found among any people on the earth, either now or at any past time. In point of fact, this plan of roofing houses was not the expression of want of mind and want of knowledge. The people knew very well the advantages of the roof throwing the rain over the wall; why they did not act up to their knowledge might be a puzzle. The Lewis people were well-conconditioned,—physically, mentally, and morally; there was much more intelligence, happiness, and gratitude in those black hovels than in the comparatively well and skilfully built houses which went to make the closes in the Canongate and Cowgate. The people of the slums of our great cities, the dregs of the population, were inferior to the people whose typical dwellings he had just been describing, and who were the whole community, embracing some members with potential although undeveloped greatness. These were a people forming part of a nation which had been for a couple of thousand years in its Iron Age. Comparing these with the Lacodones, a tribe of the Pacific Indians, occupying an inaccessible position in the Yucatan peninsula, who, found by the Spaniards in 1695, knew nothing of any metal, their instruments being all made of stone, Dr. Mitchell proceeded to remark that they had there a picture of what he might call a sort of Stone-age civilisation. In what he said of the Lewis and Harris people, on the other hand, they had a picture of what he might as properly call a sort of Iron-age barbarity. It followed, therefore, that there could be existing a sort of civilisation with the Stone Age and a sort of barbarity with the Iron Age. If that conclusion was correct, it was clearly an important one. He next referred to what are known as the beehive structures, which were just passing into complete disuse, and of which there were only from twenty to thirty now in occupation in Scotland. These houses were of different dimensions. He referred to smaller specimens at Larach-Tigh-Dhubhstapl, Harris, ten miles from Loch Roag, and in other districts, and noticed one of larger dimensions at Meall na Uamh, in South Uist, which, he remarked, might have been the palace or reception-hall of an ancient king. The dome and pillars marked it out as fit for such a purpose. Whoever used it, the designer was a man of no mean mental power, and was beyond all question a man of ingenuity, large ideas, and good taste. Could any one, he asked, even assert that he must have been potentially inferior to the builder and designer of the extremely beautiful circular church at Nocera Dei Pagani, on the road from Rome to Naples? The more the facts were studied the more it would be felt, with such a question as he had put properly raised, that there was more than the possibility of its being justified by the answer if they could get it.

NEW CLUB-HOUSES IN THE PROVINCES.

Ilkley.—Arrangements are in progress for the erection of a large building at Ilkley (to be called "The Yorkshire Residential Club") as a residence for single gentlemen, containing within it features which will render it an attractive resort for others besides those resident in the house. It is thought (according to the *Bradford Observer*) that the proposed building, with its accompanying arrangements, will meet the requirements of a large number of young men at present living in lodgings in such towns as Leeds and Bradford, and already several have expressed their intention of taking rooms. A site of eight acres has been secured near Rosemount Nursery, Ilkley, which, being upon a commanding plateau, insures to the building uninterrupted views of the valley of the Wharfe. Several influential gentlemen have associated themselves for the purpose of forming the club and erecting the building, designs for which have been prepared by Mr. George Smith, architect, Bradford. The building will contain about 200 bedrooms, a number of sitting-rooms, dining, drawing, reading, billiard, smoke, ball, and concert rooms; while complete culinary arrangements and apartments for working staff are provided. The building will have a frontage of 232 ft., having two projecting wings 110 ft. in depth. In the centre will be an elaborate entrance-porch, with entrance-hall 24 ft. in width. The principal corridor, 12 ft. wide, dividing the building into two halves, will also render the ground-floor more than usually light and cheerful, owing to it and the cross corridors terminating with large windows. The dining-room will be on the ground-floor, and will be 70 ft. by 40 ft. Over it will be placed the ball-room, of similar dimensions, and above that the billiard-room will be situated. All these rooms will be 16 ft. in height. The drawing-rooms, situated in one of the wings, will be 40 ft. by 28 ft.; and a reading-room, 24 ft. by 20 ft., will be placed over the principal entrance. The building will be four stories in height, surmounted over the principal entrance by a Mansard tower, and at intervals by smaller spirelet turrets. The cost is estimated at about 40,000*l.*

Brighton.—The "Brighton New Club" has been completed. The building stands at the corner of Preston-street, with its main frontage upon the King's-road. The building is four stories high. A noticeable feature of the interior is the loftiness of the apartments, their lightness and spaciousness, in the front rooms especially. For instance, the morning-room, the dining-room, and the card-room, each occupying respectively the fore part of the ground, first, and second floors, fill the whole breadth of the building, with a proportionate depth. In convenient proximity to the main rooms are two large billiard-rooms, both on the ground-floor, to be fitted with tables by the firm of Burroughes & Watts; also a convenient entrance-hall, fromwhich a massive, square, stone staircase reaches to the second floor. There are also, in this division of the club, a library, a private dining-room, &c., and the usual subsidiary apartments, such as manager's office, &c. The bedrooms are twenty in number, arranged in quadrangular form on the third and fourth floors. The kitchen has been furnished with every modern convenience for culinary operations. The club was erected by Mr. Barnes, builder, Upper North-street; and Mr. Thos. Lainson was the architect.

WAGES QUESTION.

AT the Woolwich Police Court, before Mr. Balguy, Robert Lonergan, builder, Plumstead, was summoned by Charles Young, bricklayer, for three days' wages, at 8½d. per hour.

Mr. Lonergan offered 7d. an hour, saying that the plaintiff was worth no more. He admitted that since the late strike in the building trades the standard wages for a good bricklayer were 8½d., but there was an understanding that masters were at liberty to pay inferior men at lower rates. His son reported to him on the first day of Young's engagement that he was not a "full-rate" man, and on the third day witness took a trowel and went to work beside him, in order to try his value. The complainant made some sarcastic observation about the master taking the trowel, and witness finding out by observation that the man was not worth full wages, told him so. The complainant then threw down the trowel, and told him to do the work himself.

Complainant said it was the first time he had ever been told that he was not worth full wages. He worked all through the strike at 8½d. an hour, and was getting the same pay from an old employer at the present time.

Mr. Balguy said that Mr. Lonergan was wrong in allowing three days to pass without fixing the complainant's wages, and that consequently he must for those three days come to the complainant's own terms. On board ship it was customary to enter a seaman as A B, and if he was afterwards found inferior the captain gave him notice, and disrated him. When Mr. Lonergan engaged a new man he should pay him at the full rate for the first day, see what he was worth, and then say what wages he was prepared to give, and not go on for three days or a week, and then offer a reduced rate. This was common sense, and he thought it was law and justice also.

Mr. Lonergan expressed himself satisfied, and paid the money demanded, saying that he should act on the magistrate's advice in future.

NEW MARKETS.

Liverpool.—An extension to the wholesale vegetable and hay market in Fox-street, Liverpool, has been opened. This market is now one of the largest of the kind in the country, covering (without the extension) 14,000 square yards. The new portion of the market extends from the west wall of the old market along Great Nelson-street to Bell-street, and has an area of 2,530 square yards, the whole of which is covered. The entrance is in Bell-street, but there is a door communicating with the present market. The floor is of asphalte, and will be divided into four avenues. The walls are stoutly built of red brick, and light is admitted by a series of large windows on three sides. The extension was built by Messrs. Burroughs & Sons. The cost, exclusive of the land, was about 5,600*l.*

Coleraine.—A number of houses occupying the site of contemplated market premises between Blind-gate-street and New-row, Coleraine, have been demolished. In addition to the necessary offices for clerks, &c., the inclosures will consist chiefly of shops, with living apartments above, the lane traversing the proposed market from east to west being widened.

London.—The works for the completion of the Metropolitan Poultry Market (previously noticed in the *Builder*) are being rapidly proceeded with by Messrs. Holland & Hannen, the contractors. The houses on the side of King-street next to the Poultry Market will have been taken down in a few days, and the ground will then be clear for the completion of that building, so as to make it in a line with the Meat Market. The street from Charterhouse-street to King-street will be brought clear out by the corner of the market, where it is at present partly hoarded up. Part of this street will have to be carried on iron girders over the railway. The concrete wall which forms the present boundary of the railway in the King-street side is to be pulled down and replaced by a brick wall, as it is not certain whether it would safely bear the weight which will rest upon it. The contractors are also engaged in the preliminary excavations for the Vegetable and Flower Market. There is here an immense quantity of earth to be removed before the whole site will be reduced to the level of the railway. It is in contemplation to set apart a portion of the site adjacent to the line for sidings, for the delivery of produce; while another portion will be devoted to stabling for the horses conveying carted market stuff. The site, which can now be well surveyed from any of the streets around, occupies the whole area bounded by the London, Chatham, and Dover Railway, Snow-hill, Farringdon-street, Charterhouse-street, and the new street on the west of the Poultry Market. This site is to be intersected by a new street, which will run from the point where Snow-hill joins Farringdon-street to a point in King-street, nearly opposite Hosier-lane. This street will be carried on iron girders over the basement of the Vegetable Market and over the railway. It will

be a most important improvement, as it will open up direct communication between the line of thoroughfare from Chiswell-street to Long-lane and Farringdon-street. The contract has only been taken for the excavations, basement flooring in concrete, and the girder-work for the streets; the amount being 13,968*l.* It is estimated that about 20,000 cubic yards of earthwork altogether have to be removed. The works are under the superintendence of Mr. Ville.

Rotherham.—Major Tulloch, R.E., has held an inquiry at Rotherham in reference to an application of the Town Council to the Local Government Board for sanction to borrow 16,000*l.* for the purpose of providing markets, and 2,500*l.* for providing slaughter-houses.

Hull.—The North-Eastern Railway Company having acquired powers to take possession of the Hull Cattle Market for railway purposes, negotiations are in progress for the purchase by the Corporation of about fifty acres of land adjoining Walton-street, the property of the company, who offer to sell the land, subject to certain conditions, for 70,000*l.*

Mexborough.—Lieut.-Col. Ponsonby Cox, R.E., has held an inquiry at the office of the Mexborough Local Board, relative to an application by that body to the Local Government Board for sanction to borrow 4,000*l.* for the erection of a market-hall. The Local Board some time ago advertised for plans, offering 25*l.* for the best and most suitable, which premium was secured by Messrs. Tacon & Rawson, architects, Rotherham. The market will be partly covered and partly open, and will comprise Local Board offices, magistrates' room, public hall, shops, cellars, &c.

MASTERS AND MEN.

Warrington.—The strike of the flint-glass cutters in the employ of Mr. Edward Bolton, of Orford-lane Glass Works, was brought to a close on the 28th ult., and the men, after a month's absence, have resumed work. The piece-work system, which was at first objected to, has been accepted, and the price-list somewhat modified.

Glasgow.—A meeting of Glasgow operative joiners connected with the union was held in Albion Hall, on the 30th ult. It was stated that the strike was virtually at an end. There were no names on the strike-roll, and with one or two exceptions all the masters had signed the bye-laws. The principal object of the meeting was to pass a resolution with reference to what are termed in the trade "knobs." A motion was adopted at the meeting to the effect that no "knobs" be allowed to work alongside of trade unionists—in other words, that they be not allowed to work at all,—and that, before being admitted members of the society, should they resolve on that course, a fine of 1*l.* each must be paid.

Willenhall.—On the 23rd ult., a meeting of workmen in the rim and mortise lock and key trade was held at Willenhall, in order to induce all engaged in the trade to become members of the Willenhall Lock and Key Smiths' Association, and to consider the desirability of amalgamating the society with the Wednesbury Trades Council. Mr. J. Carter, president of the Willenhall Lock and Key Smiths' Society, occupied the chair. Mr. R. Juggins, general secretary of the National Amalgamated Association of Nut and Bolt Makers, referred to the change that had occurred in the circumstances of the men on account of the late strike, by means of which they had gained an advance of 7½ per cent. upon their wages. He said that many might think because of that advance they had gained all they could possibly require, and that there was nothing further to be done. But he warned them that if they rested content with that they would be in the same, or even in a worse, position than they were some time ago. Only let them let go their hold on the employers and the latter would seize their opportunity and bring them lower than they had been, and the workmen would sincerely repent the apathy they had exhibited. The following resolutions were adopted:—(1) "That in the opinion of this meeting it is the duty and privilege of every workman in the trade to become a member of the Lock and Key Smiths' Association, and thereby contribute an equal share to that fund, which is established in order to enable them, on all occasions, to obtain and maintain a fair and equitable rate of wages." (2) "That this meeting, perceiving the advantages to be gained by the representatives of the various trade societies meeting together in council, does hereby instruct the committee to make the necessary arrangements for the society to be represented at the Wednesbury Trades Council."——On Monday evening last a meeting of brass padlock-makers now on strike was held, Mr. Edward Ellard in the chair, when it was resolved:—"That this meeting of brass padlock-makers and keysmiths still refuse to return to work until the employers concede the advance of their wages, for which they have given reasonable and proper notice, and which they know full well they are entitled to; at the same time a deputation of the men is open to meet the employers, so that, if possible, a better understanding may be come to."

Macclesfield. — The "Macclesfield House Painters' Committee" have issued a manifesto replying in detail to a statement in the *Macclesfield Courier* that the strike was "virtually at an end." Such, they say, is "unfortunately not the case, nor is it likely to be with some of the employers, who are constantly boasting that they shall never give what is now known as the town's wages, namely 7d. per hour, but that they will employ anybody, or, as one of them remarked a few days ago, any 'muff' that came along first. But with those employers who are giving the wages, it is a different thing; they at once gave the men 7d., and, as a matter of course, their men never stopped work at all."

Greenock.—The *Glasgow Herald* says that the 200 masons who, as already stated, lately sailed from New York for Glasgow, have come to Scotland on the engagement of Messrs. Coghill & Son, builders, Greenock. The Messrs. Coghill are the contractors for the mason-work of the extensive buildings presently being erected by the Greenock Parochial Board at Smithston; and although between two and three hundred masons can be employed on this job, very few men can be obtained, and at present there are not many more than a dozen masons working there. The reason of this appears to be, that the men find no difficulty in obtaining work within the town, which they naturally prefer to the work at Smithston, a considerable distance off. Messrs. Coghill & Son have made a special contract with the State Line Company for the transport of the men.

Southampton.—About three hundred joiners employed by the shipbuilders and steam packet companies of Southampton went out on strike on Tuesday last, the 5th inst., for an advance of 10 per cent., making their wages equal to those of other joiners in the town, viz., 32s. a week.

Nairn.—The carpenters in Nairn came out on strike on the 1st inst. for an advance of wages and for nine hours a day. Their present wage is 5d. per hour, and they ask 6d. The masons have been working only nine hours since the beginning of the year.

PRECAUTIONS AGAINST FIRE AT THE PUBLIC RECORD OFFICE.

SINCE the 1st of January last the Office of Works and Public Buildings has undertaken the entire control of the water supply and the police arrangements at the Public Record Office, which is situated on the old garden belonging to the Rolls House, Chancery-lane, and contains the muniments of the nation; and the Deputy-Keeper of the Public Records has taken the opportunity of giving an account of the means adopted for the security of the record repository from fire. The building is of fireproof construction throughout. The walls are built of brick, and the several fronts faced with Kentish rag and Portland stones. Besides the central tower of two tiers, there are four stories. Each room in which records are kept is fitted up with cast-iron presses, having slate shelves. No wood-work of any description, except a fall table fixed in the wall, is in these rooms. The division walls between the rooms are of brick. The ceilings are arched in brickwork with iron girders; the staircases are cast iron, and the floors are formed with cast iron or wrought and cast iron girders, and brick arches, with hollow fire-clay tile paving on concrete filling; but on the basement floor the paving is of Portland stone. The corridors and hall are paved either with Portland stone or tiles on brick arching. The casements and skylights are cast iron, and the room-doors are of wrought iron. The building is entirely detached, except that a wooden bridge, covered with corrugated iron, and provided with an iron door, connects a staircase with the Rolls House. The roof generally is constructed with cast-iron girders, wood principals, struts, purlins, and boarding, and covered with slate. The furnaces, boilers, &c., for the hot-water apparatus, are in the basement, and they, together with the gas supply, are considered by the Office of Works quite secure. The gas-burners, except in the offices, are protected by wire guards. The supply of water is considered sufficient by the Office of Works. There are on each floor fire-cocks affixed to pipes charged from tanks in the central tower; the depth of water in them is indicated on a dial in the hall. There is a resident turncock, and the police are on duty in the building day and night. There is to be fire-hose practice once a week. The use of lighted candles is forbidden, except by special authority in cases of necessity. Every day at the closing of the office all fires in the stoves are to be left in such a state that no danger may arise from them. No fuel is to be put on the fires after three o'clock, and the fire-guards are to be put on before the rooms are left; "nor are fires to be raked out." As soon as the office is closed, a policeman is to pass through all the rooms containing fire-places which have been used during the day; he is also to examine whether every part of the premises is secure. No person is to be admitted into the office on any pretence after it is closed. Every part of the building is to be visited by the deputy-keeper at least twice a year to ascertain whether any further precautions are required.

HOP-PICKERS' LODGINGS.

DURING the past week or ten days the South-Eastern and London, Chatham, and Dover Railway Companies have conveyed upwards of 20,000 hop-pickers—men, women, and children—to Maidstone and the immediate neighbourhood. It is therefore satisfactory to know, on the authority of the *Maidstone and Kentish Journal*, that this large "floating population" is likely to be housed in a manner more conducive both to its physical and moral well-being than has been the case in past years. The improved condition of things is largely owing to the exertions of the Kent Society for the Employment and Improved Lodging of Hop-pickers. The sanitary authorities of Bromley, Cranbrook, and Tenterden have adopted the powers afforded to them under the amended Sanitary Act, and have issued a code of bye-laws which secure, at little cost to the growers, all that can fairly be required in the provision of suitable lodgings and accommodation to the hop-pickers. The main features of the bye-laws, which are thus being enforced for the first time this year in many of the hop districts in Kent may be briefly stated. All habitations in which persons employed in hop-picking are designed to be lodged must be weather-proof and dry; clean when required for habitation; ventilated so far as may be required; and, where practicable, lighted. During sleeping hours, 16 square feet at the least of available floor space must be allowed to each adult, two children under ten years of age counting as one adult. Screens or partitions of sufficient height and length to secure privacy must separate the beds. Available places for cooking and the drying of clothes must be provided in the proportion of one to fifteen pickers, and there must be a sufficient supply of good water. The other regulations relate to the changing or cleansing of the straw used for beds, the limewashing of each habitation previously to the periodical occupation, and the removal of accumulations. The penalty for an offence against any of the bye-laws is a fine not exceeding 10*l.*, with a further penalty not exceeding 10s. for every day during which the offence shall continue.

HUNSTANTON CONVALESCENT HOME.

SIR,—Seeing in your last week's paper an advertisement inviting architects to send in designs, &c., for the above building, I feel you will allow me to make a few remarks upon this matter; for, at a meeting of subscribers held at the Town-hall, in Lynn, a short time ago, several gentlemen expressed it as their opinion that they were morally bound to employ Messrs. Drury & Lovejoy, the architects to the Hunstanton Estate, as they had already taken the trouble to prepare some designs, and were also subscribers to the building fund. I am of their opinion too, but as the committee have advertised for plans, in justice to those about to compete, and to remove every suspicion, they ought to undertake to employ a professional man, quite unbiassed, to make a report on the plans submitted, or otherwise they will get very few designs from competent men, except, perhaps, from those unacquainted with what took place at the meeting before mentioned; for architects have been "sold" too often lately in competitions, and do not care to waste valuable time, not to say anything about money, to gain a paltry second premium. All the competitors cannot be first; but, at least, let the unsuccessful ones know that they were beaten solely by merit.

AN OLD BIRD.

ANOTHER MORTISING MACHINE.

MESSRS. F. W. REYNOLDS & Co., the engineers of Southwark-street, have brought out another new patent mortising-machine, the novelty of which consists in the method of connecting the hand-lever to the part which carries the spindle of the chisel. In place of the usual rack and cog-wheel, it has an articulated elbow, or toggle movement, the action of which not only produces the requisite vertical motion of the chisel, but gives it an increased power as it penetrates deeper and deeper into the material being worked. The regularity of the depth of mortises not required to pass through the wood is secured by making the part adjustable which carries the chisel-spindle of the fulcrum of the lever. The lever is always brought down to the lowest point, but the desired uniformity in depth of the mortise is obtained by this method, the patentee claims, with great certainty, and with less trouble than is required by other machines that are made for this purpose. It will be called the "Eclipse."

MELBOURNE SEWERAGE.

AT a meeting of the Parochial Committee for Melbourne, Derbyshire, held on the 30th of August last, the following tenders were opened for sewerage works at Melbourne, when the Committee unanimously recommended the tender of Mr. W. Smart, contractor, Nottingham, to be accepted subject to the approval of the Shardlow Sanitary Authority: this recommendation the Rural Sanitary Authority have decided to adopt. Mr. Geo. Thomson, of Derby, is the engineer:—

Knight	£4,950 5 0
Barton	2,998 0 0
Knighton	2,913 0 0
Vale	2,846 15 0
Cowderey & Sons	2,844 0 0
W. & H. Earl	2,814 10 0
Maclean	2,795 0 0
Shaw	2,600 0 0
Smart	2,500 0 0
Lea & Fryer	2,410 0 0*
J. & F. Tomlinson	Schedule of prices.
Harpur	" "
Tyson & Son	" "

* And 4s. per yard extra for rock cutting.

OBITUARY.

Mr. F. W. Maynard.—Mr. Frederick Waite Maynard, secretary of the Arundel Society, and for many years secretary of the Artists' General Benevolent Institution and the Artists' Orphan Fund, died on the 27th ult., while in Switzerland, at Bex, Canton de Vaud, at the age of 44.

Mr. George Smith.—A telegram, received at the British Museum on Monday last from Constantinople, states that Mr. George Smith, the Assyriologist, died at Aleppo on the 19th ult.

"OPEN SPACES."

STABLES IN A COURT!

SIR,—Here in Southwark we are filling up very small open spaces! If any of your readers are sceptical as to this, let them pay a visit to Red Cross-court, in the High-street, in the Borough, and they will find what I state to be correct,—that there have been just erected stables in the centre of a court. It is almost incredible, but there they are nevertheless. A City Company (the Vintners) are not ashamed to try to increase their revenues by such an act of Vandalism! ONLY A TAILOR.

P.S.—I find it is called a square. It is approached from the High-street by a passage that the "Claimant" could scarcely pass through.

RIGHTS OF RIPARIAN OWNERS.

LYON *v.* THE FISHMONGERS' COMPANY.

AN important judgment was lately delivered by the House of Lords in the case of Lyon *v.* The Fishmongers' Company and the Conservators of the Thames." The suit was instituted by the owner of Lyon's Wharf, near Upper Thames-street, for the purpose of restraining the Fishmongers' Company from making, and the Conservators from granting a licence to make, an embankment which would cut off all access of barges to the west front of Lyon's Wharf. Vice-Chancellor Malins, on the principle that if a man's house has two doorways opening on the highway he has an equal right to the uninterrupted use of both, decided that the right claimed by Mr. Lyon was a private right expressly reserved to him by the 179th section of the Thames Conservancy Act, and that the Conservators had gone beyond their powers in granting to the Fishmongers' Company the licence to construct the proposed embankment, and granted the injunction asked for by the plaintiff. The Court of Appeal declined to hold that the rights of a riparian owner on the banks of a stream above the flow of the tide necessarily extended to a riparian owner where the tide flows and reflows, and held that the only right the latter proprietor had in reference to the river was a right of navigation, and, consequently, that the only ground he would have for restraining an obstruction interfering with his right of navigation was, that the obstruction would be a public nuisance, from which he individually would suffer damage. The court held, moreover, that the rights reserved by the Thames Conservancy Act were the private rights of the owners and occupiers of wharfs, and not their interest in the public navigation of the river. From this decision Mr. Lyon appealed to the House of Lords. The Lord Chancellor, Lord Chelmsford, and Lord Selborne now delivered judgment. The Lord Chancellor was of opinion that the view taken by the Lords Justices of the rights of a riparian owner on the banks of a navigable river was wrong. The ordinary rights of a riparian owner of a non-navigable river were well known. Those rights, in his lordship's opinion, were retained by the owner of land on the banks of a tidal and navigable river, though no doubt they underlay, and were controlled (not extinguished) by the public right of navigation. The questions were (1), what were the rights of Mr. Lyon; and (2) were those rights reserved by the 179th section of the Thames Conservancy Act. In his (the Lord Chancellor's) opinion both questions had been rightly decided by the Vice-Chancellor, and the judgment of the Lords Justices ought to be reversed. Lords Chelmsford and Selborne concurred.

NEW MUNICIPAL BUILDINGS.

Newbury.—On the 30th ult. the Mayor of Newbury (Mr. W. G. Adey) laid the foundation-stone of new municipal buildings for the town. The new buildings, which will cost upwards of 4,000*l.*, will comprise a commodious council-chamber, a court for administration of justice by the county and borough magistrates, municipal offices, &c. The architect is Mr. James H. Money, of Speenhamland, whose plan was selected in competition, and the contractor is Mr. Crook, of Southampton. The "foundation" stone is the corner stone of the principal tower, and weighs nearly four tons.

Wantage.—The *Reading Mercury* states that negotiations have been successfully completed for obtaining a site for the erection of new municipal buildings at Wantage, the committee having purchased the Falcon Inn and some adjoining premises.

Leicester.—On the 17th ult. the Mayor of Leicester (Mr. W. Barfoot) opened the new municipal buildings at Leicester, erected at a cost of about 50,000*l.* The buildings are in the "Queen Anne" style, from competitive designs by Mr. F. Hames, London, and comprise assize and borough police-courts, police and fire brigade stations, council-chamber, school board, and other public offices.

ACCIDENTS.

DR. HARDWICKE, the coroner for Central Middlesex, lately held an inquiry at University College Hospital as to the death of Charles Bonnick, aged fifteen. The deceased was in the employ of Mr. Cowland, heraldic painter, Woburn-place, and was engaged in painting the steps of the staircase leading from the hall to the drawing-room floor of his employer's house, when he fell over the baluster on to the hall floor, fracturing his skull. It appeared from the evidence that the deceased was leaning over the baluster in order to paint the nosings of the steps. The jury having viewed the staircase, one of the jurors said that the steps were dangerous, there being from the ground-floor to the drawing-room floor no less than ten winding steps and fourteen straight ones; and the baluster-rails were rather lower than the average. The nosing could not have been done easily by reaching through the baluster-rails. The coroner said that the lesson to be derived from this case was, that practical men only should be employed to do dangerous work. Employers who put inexperienced persons to dangerous work were responsible, under Lord Campbell's Act. It was like a gentleman asking his coachman to clean windows, although not used to it. The jury returned a verdict of "accidental death."

Dr. Hardwicke has also held an inquest at the Middlesex Hospital, as to the death of Alfred John Bull, aged thirteen, a youth employed in the cabinet factory of Messrs. Howard & Son, Cleveland-street, Fitzroy-square. Deceased was employed in the turners' shop, under Mr. William Reeves, a contractor with Messrs. Howard & Son for turnery work. It appeared that Reeves left his lathe on the day in question in motion, in order to go and sharpen some tools, and during his absence deceased, on passing the lathe, fell against it, and was struck on the head with a piece of wood thrown from the lathe by the machinery, his skull being fractured. Joseph Langdon, a sawyer at the works, who saw the accident, attributed it to the flooring near the lathe being worn uneven and slippery. The jury decided that this was a case of accidental death; but they were of opinion that had the floor in front of the lathes been in a proper condition, the accident could not have happened.

An inquest was held at Gravesend on the 29th ult. by Mr. E. A. Hilder, the borough coroner, relative to the death of William Smith, aged nineteen years, lately employed as a labourer at the cement works of Messrs. Knight, Bevan, & Sturge, Northfleet, who was scalded while engaged in cleaning a boiler. Verdict: "accidental death."

A serious accident, by which one man lost his life and two others were injured, occurred on the 31st ult. at Manchester. It appears that a number of men were engaged upon some buildings which are in course of erection in Fennell-street, by Mr. Isaac Storey, for the purposes of shops and offices, the builder being Mr. R. Thomas, Long Millgate, and the contractor for the brickwork, Mr. S. Adshead, Hoyle-street, Fairfield-street. At the time of the accident, Philip Connolly, aged fifty-nine, a labourer; William H. Johnstone, bricklayer; and another man named Charles Hartshorn, also a bricklayer, were "pointing" an arch in the basement. The arch was 6 ft. 10 in. across, with a rise of 10½ in., and about 6 yards in length, and was three rings of bricks in thickness. The "centres" of the arch were drawn three days previously, but a tie-rod had been placed to prevent the arch from bulging. Another man, also named Connolly, had been assisting in the work, but had gone to the front of the building when he heard the men shouting, and the noise of falling bricks and masonry. He ran to the spot, and found that the arch had fallen, and that the men were buried beneath a large mass of earth and bricks. It was said that the accident was due to the heavy rains of the previous few days, which, penetrating between the bricks composing the arch, had prevented the mortar from setting.

On Saturday morning last Mr. William Carter, the coroner for East Surrey, held an inquiry at St. Thomas's Hospital respecting the death of Mr. J. J. Cockle, of Vine-place, Bond-street, South Lambeth. From the evidence of J. Lines and G. Williams, it appeared the deceased was superintending the works now in progress at St. Ann's Church, Lambeth. At the time of the accident the workmen were hoisting a large beam, weighing a ton and a half, for a "principal," by the aid of a derrick, which was in the second scaffold. The crab was set in motion, and immediately after the rope collar, 4½ in. in circumference, snapped asunder, and the deceased was caught on the head by the broken collar, and knocked off the scaffold, falling in his descent on his head, a distance of over 40 ft. He was picked up in a pool of blood and conveyed to St. Thomas's, where he expired shortly after admission. The jury returned a verdict of "accidental death."

CHURCH-BUILDING NEWS.

Panteg.—Panteg Church, near Pontypool, has lately been re-opened, after restoration from plans by Mr. Woodyer, architect, Graffham, under the superintendence of Mr. W. U. Coupmaker, by a foreman mason, Charles Randall, and a carpenter, Thomas Jenkins, of Caerleon.

Croxton.—An effort is being made to raise a fund for the restoration of the parish church of Croxton, Lincolnshire. Mr. Fowler, architect, reports the edifice to be "in a very dangerous state." The church appears to have been built in the twelfth century, and had originally north and south aisles to the nave, which have long

since disappeared, but the foundation of the north aisle remains, and the arcade,—for it is at present in the walls, built up, the pillars being very handsome ones, in fair condition. It is proposed to rebuild the north aisle, a porch, and vestry, and to restore the tower, walls, roof, and windows, and reseat and refit the whole, the cost being estimated at about 1,100*l*.

Holywell.—The foundation-stone of a new vestry and organ chamber at Holywell Church was laid on the 3rd ult. Mr. H. J. Tollit is the architect of the new building, and Messrs. Knowles & Son, builders, of Holywell, are the contractors, and it is expected that the work will be completed in about three months.

Dudley.—A new church, dedicated to St. Luke, was recently opened at Dudley by the Bishop of Worcester. The style of the church is Early Pointed, and the architects are Messrs. Davies & Middleton. The foundation-stone was laid in May, last year, and the whole of the work has been executed in a very substantial manner. The windows, which are of cathedral tinted glass, are the work of Mr. John Davies, of Worcester.

Navenby.—The parish church of St. Peter, Navenby, has been re-opened, after restoration. The building, which dates from the Perpendicular period, was very dilapidated when taken in hand by the architect. The walls have been stripped, scraped, and pointed; the old pews have been replaced by open oak benches, with carved and moulded side ends; the blocked-up organ-chamber has been opened out. The old roofs have given place to new ones; the flooring-stones have been refaced and relaid; the chancel floored with Minton's tesselated pavement, laid in geometrical patterns; the great east window restored to its former style; and a new porch and vestry built. Mr. Chas. Kirke is the architect, and the work has been carried out by Messrs. Rudd & Son, Grantham. The cost will be 3,500*l*.

Corscombe. — The old church of this parish has, with the exception of the porch and tower, been razed to the ground, and the foundation-stone of a new edifice as its successor has been laid by Miss Troyte Bullock, of Sedgehill House. Mr. Charles Trask, of Norton, is the contractor for the work, which has to be completed by next May.

Gainsborough.—It has been decided to continue and complete the decoration of the nave of the parish church of Gainsborough in harmony with that of the apse, which was carried out last winter. The work has been entrusted to the same artist, Mr. J. Knowles, of York, and it is estimated to cost 300*l*. The work will be commenced shortly, and finished (it is hoped) by the end of October, the church being closed during the interim.

Little Leigh (*Cheshire*).—The foundation-stone has been laid of a new church, which is to supersede the present dilapidated edifice. The new church of St. Michael is to be constructed in the Gothic style of the Early English period, from the plans of Mr. Edmund Kirby, and the building is intended to seat about 200 persons. The builder is Mr. Richard Beckett, of Hartford. The foundation-stone was "well and truly laid" by Lady Leigh, who fulfilled her duties in a workmanlike manner with a silver trowel from Messrs. Hunt & Roskell's. The trowel was presented to Lady Leigh by two young lady parishioners on behalf of the ladies of the parish, who have taken a great interest in this Church movement.

STAINED GLASS.

Frankley.—The inhabitants of Frankley have decided to place a new east window in the chancel of the parish church, as a memorial to the late Lord Lieutenant. The subject of the window will be Abraham's Offering, the Good Samaritan, and the Good Shepherd, and the work has been entrusted to Mr. Bourne, Birmingham.

Morecambe. — A memorial window has been placed in the east end of Morecambe Church, to perpetuate the memory of the late rector, the Rev. E. F. Manby, who died in January last. The window consists of three lights, the subject illustrated being the Crucifixion. The centre light contains the figure of our Lord upon the cross, with an angel above weeping, and the Magdalene embracing his feet, and beneath this another angel bearing a scroll, with the inscription, "It is finished." The right-hand light contains the figure of the Blessed Virgin Mary, with her emblems,—the rose above and the lily beneath. The left-hand light contains the figure of St. John with his emblems,—the apostolic chalice and dragon above, the evangelical eagle beneath. Throughout the two side lights there is a groundwork of passion-flower ornament painted *en grisaille*. The window has been executed by Messrs. Shrigley & Hunt, Lancaster.

Burslem. — A stained glass window to the memory of the late Joseph Shirley, of Longport, has just been placed in the south aisle of Dale-hall Church, at the expense of the workpeople of Messrs. Davenport & Co., over whom Mr. Shirley for many years acted as manager. The design of the window consists mainly of floral wreaths running over a ground of circles and quatrefoils. Beneath the window is a brass tablet bearing an inscription.

Denham. — The east window of Denham Church, which consists of two lights, has been filled with stained glass by Messrs. Dixon, Frampton, & Hean. The subjects represented are the Crucifixion and the Ascension, and the quatrefoil in the heading is occupied by the Agnus Dei.

Henstridge. — A stained glass window, by Messrs. Hardman, has just been given to the parish church of Henstridge, as a memorial of the late Mrs. Macdonald. The window represents our Lord's Epiphany to the Gentiles, the visit of the Wise Men. This occupies the centre light. The tracery of the window head is also filled with coloured glass.

Thirsk.—Another stained glass window, by Messrs. Lavers & Barraud, has just been erected at the west end of Topcliffe Church, to the memory of Charles William Hawkins, eldest son of the vicar, who died suddenly at Bombay, August 3, 1875.

Bottisham.—An Early English triplet window, designed by Mr. A. W. Blomfield, has just been placed in Bottisham Church, and filled with stained glass by Messrs. Clayton & Bell, as a memorial to the late Col. Soame Gambier Jenyns, C.B.

Books Received.

Latham's Edition of Johnson's Dictionary of the English Language. Abridged by the Editor. Longmans, Green, & Co. 1876.

DR. LATHAM'S edition of Dr. Johnson's well-known dictionary is admittedly an excellent and very superior work. This forms four quarto volumes, and is too large and costly for many who yet need a good dictionary. Dr. Latham has done good service, therefore, in reducing the original work to one of moderate dimensions in octavo, the substance of the greater work having been carefully preserved. The reduction of matter has been effected chiefly in the extracts given in the way of authority and illustration. In the larger edition these extracts were both numerous and long: many are retained in the new work.

In a very interesting "Historical Sketch of the English Language," prefixed to the volume, the editor has traced the history of the three languages or dialects which make up the present spoken language. He shows that "the principle which has determined the present arrangement is the fact that, whether we use the word *language* or *dialect*, each of the three is represented by a definite and important literature. (1) The *West-Saxon* culminates as the literature of the times before the Norman Conquest, and the fact of its *not* having been the direct and lineal ancestor of the present standard English has long been understood. (2) The *Northumbrian* is represented by the lowland Scotch, which up to the union of the two Crowns was as much a different language from the English of South Britain as the Portuguese is a different language from the Spanish, or the Danish from the Swedish. (3) The present classical, standard, typical, or literary, English is *Midland* or *Mercian*; and this is the one with which the present Dictionary is most specially connected." The head-lines are printed in a strong and obvious type, so as to make reference easy and agreeable. The book is sure to have a large sale.

"La Semaine des Constructeurs," 51, Rue des Écoles, Paris.

THIS is the title of a weekly illustrated journal of public and private works, which has been started under the general direction of the energetic M. César Daly, M. P. Planat being the sub-director. It is published every Saturday, price half a franc, and has already reached eight numbers. It has something of the character of the *Builder*, and will doubtless reach a body of readers who would be little likely to subscribe to the *Revue Générale de l'Architecture*, and other similar higher-priced and severer periodicals. We cordially wish M. Daly complete success in his new undertaking.

Miscellanea.

Why should not Hydraulic Lime be made at Reading?—Mr. James J. Wheble, of Bulmershe, Reading, in a letter to the *Reading Mercury*, says:—"There is plenty of clay and chalk in the neighbourhood, and the question may be fairly asked, why we cannot make hydraulic lime, such as is used at Silchester and Reading Abbey? Was that lime made here from clay and chalk, or did it come from the limestone formations, and commonly called blue lias? The Silicate and other companies state that they can teach the art of making lime; and if such a company was formed, we might utilise our gravels for concrete houses and walls. Bridgewater hydraulic blue lias lime is 30*s*. per ton, and will make about 7,000 bricks of about 9 lb. weight. The concrete walls at Silchester and Reading were most likely made thus: a layer of large or small stones was made a certain height, and then the lime, well wetted, was mixed with broken bricks and stones, and found its own level when put into this trough. Hydraulic lime is burned and ground, and, when wetted, gives out no heat, but hardens at once, even under water. I have heard it said, frequently, that the Romans ran their mortar in hot. It should have been in a liquid state. Concrete houses and walls have been built in Reading, and bricks are now being made; but the blue lias or Portland cements are not equal to that used at the Reading Abbey and elsewhere. I have a brick kiln with plenty of clay, and I am about to dig a well into the sand bed near the deep cutting on the Great Western Railway at Sonning to drain at all times the gravel beds above them, so as to utilise the gravel for concrete works. I have made many inquiries about making hydraulic lime, to no purpose, and should be glad to receive any information on that subject. I have made concrete bricks, and built walls which have stood fairly, but the lime is uncertain, and sometimes flies."

A New Flying Machine.—Mr. J. Simmons, C.E., made some experimental trials of a new description of flying machine at Chatham Lines on the 24th ult. The machine is intended for use by an army in the field, so as to enable a person to be raised by means of the wind to whatever elevation required to reconnoitre the movements of a hostile force, and to ascertain the whereabouts of an enemy's position. Mr. Simmons displays for this purpose a number of parakites, which are in reality huge square-shaped kites, the material of which they are composed being French cambric covered with a coating of birdlime and indiarubber. Each parakite is balanced by a long tail composed of goosequills. The first parakite raised was a few feet square, and on the required height being obtained it was fastened to another of the same description, somewhat larger; a third and fourth were subsequently raised, and a height of about 1,200 ft. attained by the smallest of the parakites, the lifting power being such that with about a dozen men holding on to the ropes a drummer-boy was raised from the ground by the pulling force of the parakites. At this moment, and just as a fifth parakite was about to be raised, one of the rods used for stretching the machine gave way, rendering it useless. The largest of the five parakites, which is 25 ft. square, was then raised, when it was found to have a lifting power sufficient to raise a man. Almost immediately afterwards the rope gave way from the immense strain of the four parakites, and the whole came to the ground.

Memorial Church to Dr. Hook at Leeds.—On Saturday the foundation-stone was laid in Leeds by Lord Hatherley of a memorial church to the late Dr. Hook, formerly vicar of Leeds. The stone bore the following inscription:—"This foundation-stone is laid to the glory of God and the memory of Walter Farquhar Hook, D.D., vicar of this town 1837-1859, by his life-long friend, William Page, Baron Hatherley, late Lord High Chancellor of Great Britain, Sept. 2, 1876." The cost of the church will be about 20,000*l*. The architect is Sir Gilbert Scott.

Art Gallery of New South Wales.—An art-gallery was opened at Sydney on June 1, and will henceforth, says the *Sydney Morning Herald*, be accessible to the public, without charge, every Friday and Saturday afternoon. The Council of the Academy of Arts, to whom the public are indebted for the foundation of this institution, are (says the journal mentioned) worthy of all praise, and the success of their labours must be satisfactory to the lovers of art. Their difficulties have been considerable, but by persevering energy they have been surmounted, and the art-gallery being once established, it will grow in favour until the colonists feel proud of their national collection of pictures. To the unwearied efforts of Messrs. E. L. Montefiore and E. Du Faur, the present results are mainly to be attributed. Parliamentary grants in aid of the purchase of pictures have been voted for the past two or three years, and the appropriation of the money has been placed in the hands of Sir Alfred Stephen, and Messrs. E. L. Montefiore, J. R. Fairfax, and E. Du Faur as trustees for the formation of this national institution. The original grant was 500*l.*; subsequently 500*l.* were voted for the same object, and on the motion of Mr. Watson, M.L.A., 1,000*l.* were voted to the Academy of Arts, a portion of which the council agreed to expend in the purchase of pictures for the National Gallery. Out of the first 500*l.* available, six paintings were procured, being by T. W. Richardson, Paul Naftel, O. W. Brierley, J. W. Whymper, J. H. Mole, and H. Brittan Willis.

French Ouvriers and American Workmen.—The delegates sent by the artisans of Paris to the Philadelphia Exhibition have had a dinner given to them, which 600 persons attended. M. Desmoulins, secretary of the delegates, gave a summary of what they had observed, and declared that unless France developed technical education she would lose her industrial superiority. M. Daniel, delegate of the shoemakers, followed him in a speech showing that he had found the United States less of a working-man's paradise than he had imagined it. He remarked: — "There are, strictly speaking, no American artisans. All the artisans of America are the expatriated of other countries, who have carried their industry thither. In that great American Republic, so much vaunted by our politicians, we found what is seen everywhere at home, the same economical position for the workman, capital being there as much the master as in France. In America workmen have every possible liberty, and there are more schools than with us; but if negro slavery has been abolished, that does not prevent white slavery from existing in all its rigour. In spite of all the methods of teaching, schools, libraries, and universities, to be found in America, the workman is ignorant. He has every liberty, but he does not make use of it. The reason is that he is forced to work fifteen hours a day in order to live miserably."

Fall of a Tunnel.—The new line of extension of the Metropolitan Railway system from Bishopsgate to Aldgate was the scene of a shocking accident on Wednesday last, resulting in the death of two, if not three, men, and serious injury to others. The carrying out of the extension has been intrusted to Messrs. Lucas & Aird, and a great part of the tunnel has been finished. The line runs from the Bishopsgate station in Liverpool-street across Bishopsgate-street to the eastern side of Houndsditch, and the work of tilting the rubble, on the top of the brick tunnel, has been going on at that point of the line running beneath Cavendish-court, Houndsditch. About three o'clock in the afternoon a horse and cart were upon the top of the tunnel at the last-mentioned point, when the brickwork suddenly gave way and about 20 yards of the tunnel fell in, carrying with it the horse, cart, and the driver. Neither of the three was injured, but unfortunately some ten or twelve men were at work immediately under the part that fell. In an instant the whole of the poor fellows were struck down by the mass of brick and rubble. Two men were found to be dead, and six so frightfully hurt that no hopes were given of their ultimate recovery. The sufferers are all bricklayers.

Holland and her Colonies.—The Dutch Colonial Department have determined on improving the harbour of Batavia, Isle of Java. A Dutch firm, a French firm, and an English firm sent in tenders. We understand the Dutch Government have selected that of the English firm, Le Fevre & Co.

The Birmingham Improvement Scheme and Artisans' Dwellings.—By the provisions of the Artisans' Dwellings Improvement Act, it is enacted that the local authority, on proceeding to carry out improvements, shall provide for the accommodation of at least as many persons of the working classes as may from time to time be displaced within the condemned area, such accommodation to be provided within the area itself or in its vicinity, unless there are special reasons to the contrary. The provisional order for the Birmingham Improvement Scheme also stipulates that only so much of the areas shall be cleared of buildings at one time as will suffice to provide accommodation for at least 500 of the persons to be displaced, no further clearances to be made until these are provided for. The *Birmingham Gazette* states that these matters have recently engaged the special attention of the Improvement Committee, who have been fortunate enough to secure a plot of ground three acres in extent, at present unbuilt upon, within an easy distance of any part of the condemned area, and upon which building could at once take place, and proceed *pari passu* with the work of demolition. Miss Ryland, who has already done much for Birmingham, has indicated her wish to materially assist in the erection of houses for the working classes.

The New Street from Shoreditch to Oxford-street.—On Monday last another section of the new main thoroughfare from New Oxford-street to Shoreditch, now in course of construction by the Metropolitan Board of Works, was opened to the public. The portion of this new street is situate between High-street, Shoreditch (opposite Commercial-street) and Tabernacle square, Old-street, and is about 2,000 ft. in length and 60 ft. wide, the carriage-way being formed of granite and the footways of York stone. A portion only of the street is at present available for carriage traffic. It forms a part of the new thoroughfare from Shoreditch to New Oxford-street, now in progress at a cost of nearly a million. Old-street will be widened on the North side, and Wilderness-row was widened and opened in May, 1875; a new road will be formed from St. John-street, Clerkenwell, to Farringdon-road, near the Clerkenwell Sessions House, and another new road to Liquorpond-street, which will be widened, as well as Christopher-street, King's-road, and Theobald's-road. A communication has been opened from Gloucester-street and Kingsgate-street to Vernon-place and New Oxford-street. A wrought-iron girder bridge to carry the new street over the Metropolitan Railway at Farringdon-road has been completed, at a cost of 18,250*l.*

A Suggested Street Improvement in the City.—"A Minorite," in a letter to the *Daily News*, says:—"Will you allow me to call the attention of the Board of Works and the Corporation of the City of London to a scheme which appears to me to have all the constituents to cause it to be favourably received, not only by the above Boards, but by the general body of business men? Before making the connexion between the District and the Metropolitan Railways, would it not be well to consider the advisability of making a good wide street from the eastern end of Cannon-street, through Eastcheap, Tower-street, over Tower-hill, to the south end of the Minories? I would suggest that the new street should not stop there, but continue its course to meet the Commercial-road at the end of Alie-street: this would give a good broadway from Blackwall to Westminster; the two railways mentioned could join by using the new street, as they have done under the Embankment. Such a street would much relieve the already overburdened streets in this neighbourhood, and open a good broad passage from East to West. The proposal to erect a bridge at Tower-hill should carry some weight in the consideration of these suggestions. If we are fortunate enough to get the bridge, unless we have some good wide approaches to it we may suffer from the blockings such as affect the passage over London Bridge."

The Gibbon Wakefield Bust, sculptured by Mr. Joseph Durham, A.R.A., has just been placed in the corridor of the Colonial Office on a bracket, bearing the following inscription:—"Edward Gibbon Wakefield, author of the "Art of Colonisation," born in London 20th March, 1796, died at Wellington (N.Z.) 16th May, 1862. To commemorate his statesmanlike qualities and disinterested efforts for the improvement of the Empire, his friends and admirers have presented this bust to the Colonial Office."

The Ascent of Steep Railway Gradients by Locomotives. — With reference to the experiments carried out on the High Peak Railway, of the London and North-Western Company, in Derbyshire, mentioned in the *Builder* last week, we learn from the *Derby Reporter* that the distinguishing feature of Mr. Handyside's system is to fix the locomotive to the rails; and, for the ascent of the incline, to convert it into a stationary engine. At the back of the locomotive a horizontal drum is fixed, round which a steel wire rope is coiled. The drum is rotated by separate cylinders. On each side of the engine-framing is suspended a self-acting gripping strut. These, when pressed by levers, clasp the sides of the rail firmly, and so fix the engine in its position, and render it stationary. The engine is of light construction, which involves a saving in the weight to be moved, and in the weight of rail and general construction of the permanent way; but the essential novelty is the use of an effective brake to give great power in arresting speed in the descent, and particularly in fixing the engine in the ascent, then turning the steam into the cylinders which produce the revolution of the drum, and drawing up the load by the steel wire rope.

Cleansing Old Iron Water Pipes at Elgin.—A short time ago the commissioners of Elgin resolved to cleanse the old iron water-pipes, and relay them in those parts of the town where they would be of use. The first portion of the pipes (which had been in the ground for more than twenty years, and were much incrusted) has now been cleaned. The process was gone through at New Elgin, where a rough furnace was erected to meet the object in view. The pipes, two at a time, were laid into the furnace, and subjected to an intense heat for about half an hour. The action of the heat loosened the incrustation of the pipes, and when the pipes were lifted out of the furnace the greater portion of it at once fell off. The most troublesome portion of the work, however, remained to be done. The pipes had to be cleaned with a spring scraper, made to exactly fit the size of the pipe. After undergoing this work, the pipe was allowed to cool till it was in a fit condition to be dipped into a "well" some 12 ft. deep, containing Smith's patent solution, where it remained for nearly a minute; after which it was taken out, and presented all the appearances of a new pipe. By the adoption of this process the town will, it is said, be 300*l.* richer than if the old pipes had been sold as mere metal, and new pipes bought to replace them.

Proposed Railway for Cranbrook.—A numerously attended meeting of inhabitants of Cranbrook and neighbouring parishes was held at the vestry-hall last week, in response to a notice inviting the presence of all who were favourable to the project of making a light railway from Paddock-wood to Cranbrook. Mr. J. S. Hardy, M.P., presided, and in the course of his address said,—One respect in which this scheme differed from the old one was, that it would have a station brought into the town of Cranbrook, instead of stopping at Hartley. They must judge for themselves whether a railway would be an advantage to them, and, if so, the main point then would be whether they were prepared to find a portion of the cost which would be incurred in its construction. The cost would be probably 100,000*l.*, or rather less. Mr. Butler, engineer, said it was proposed to commence the line at Paddock Wood Station, passing thence through the villages of Brenchley and Horsmonden, between Lamberhurst and Goudhurst, and terminating near the brewery in Cranbrook. Its length would be thirteen miles. A resolution pledging the meeting to cordially support the project was carried unanimously.

Building Operations at Portobello.—It is stated that a second skating-rink is about to be erected in Portobello, near Edinburgh. The site is at the foot of Bath-street, and the building will front the promenade, Bath-street, and Bath-place. The rink will be on the first floor, access to it being obtained by a staircase at the angle of the building; it will be about 100 ft. in length by 70 ft. wide; lighted from the ends, sides, and roof. The plans are being prepared by Messrs. Sutherland & Walker, architects. The ground attached to the mansion-house known as Ramsay Lodge is, it is stated, shortly to be opened up for feuing purposes. It is proposed to lay out several streets having access from Bath-street and Ramsay-lane. The feuing plans are in course of preparation by the above-named architects.

Tenders for Painting at Southampton. At a meeting of the Southampton Town Council, on the 30th ult., the Cemetery Committee reported that Mr. Lemon (the borough surveyor) had named 65*l.* as his protecting estimate for certain painting at the cemetery. The following tenders were received:—

Browning	£65 0 0!
Comport	55 10 0
Penny	52 12 6
Sims	45 18 0
Doggrel	40 0 0
Pardey	27 0 0!

The committee recommended that Mr. Pardey's tender be accepted, the work to be done according to the specification prepared. Some discussion ensued on the propriety of accepting Pardey's tender, it being urged, on the one hand, that he must have made a mistake, and that the work would be "scamped," and, on the other, that the surveyor would be responsible for the due performance of the contract, and that, the tender being submitted, the council had no right to assume that the man did not know what he was about, and would not do the work properly. The proposition was carried.

A Relic of Old London.—An interesting relic of old London (the *Athenæum* says), missing, according to Maitland's testimony, during more than 150 years, has just been discovered, during the demolition, previously to rebuilding, of the premises, No. 23, formerly 25, Pudding-lane, near the Monument. This is an inscribed stone, found face downwards, in a pavement, formerly of a back yard of the house in question, which, at a comparatively recent period, has been floored over. The stone seems not to have been exposed to the weather, and was probably removed from its original place very shortly after it was set up. The inscription is as follows:—"Here by ye Permission of (H)eaven, Hell broke loose upon this Protestant City from the Malicious hearts of barbarous Papists, by ye hand of their Agent Hubert, who confessed, and on ye Ruines of this Place declare(d) the Fact, for which he was hanged, (vizt) th(a)t here began that dredfull Fire, which is de(s)cribed and perpetuated on and by the (n)eighbouring Pillar. Erected Anno 168( ) (i)n the Majoritie of Sr Patie(nc)e Ward Kt."

A Chapel for Sale.—On Thursday in last week Mr. Jenkinson put up for sale by auction, at the Mart, the old proprietary chapel, situated in Montpelier-street, Knightsbridge. The auctioneer, in stating the nature of the property, said the building was estimated to seat 1,000 persons, with an excellent organ, and an appropriate chancel. The chapel was a proprietary one, and occupied the large area of 6,500 square feet. If any of the clergy he saw present were inclined to purchase he would remind them that this might prove a much more eligible investment than an advowson, for with the latter it might be a long time before possession could be obtained, and then the income was fixed; but in the case of Brompton Chapel immediate possession would be given, and a popular clergyman might secure a continually increasing income. The first bid was 4,000*l.*, which rose to 6,000*l.*, upon which a clergyman who was present made an advance of 100*l.* The auctioneer said the 6,100*l.* was below the sum fixed by the Court of Chancery, and the property was open to sale by private contract.

Overcrowding at Malton.—At the monthly meeting of the Malton Local Board of Health, on the 30th ult., the nuisance inspector under the Sanitary Authority reported the existence of typhoid fever in a cottage owned by Earl Fitzwilliam. His report stated that the cottage was very much overcrowded, there being only two bedrooms, and in one of these four daughters, of the respective ages of 18, 11, 7, and 5, and two sons, 17 and 12 years of age, were nightly sleeping. The house, he said, was very clean, but much too small for the inmates, eight in number; and he added that it had been stated the boy who had the fever had contracted it by bathing in the Derwent, as he had several times gone in near where two drains emptied themselves into the river. Dr. Young, the medical officer of health, also reported two more cases of overcrowding at Norton, where he said there were two families of seven persons each occupying only two rooms. The Board gave instructions for the abatement of the evil.

The Indian Public Works Department. The *Bombay Gazette* states that Sir Andrew Clarke is said to have prepared a scheme for the reorganisation of the Public Works Department, which is to come into force about next December.

Rust Cement for Water and Steam Pipes.—The *Engineer* says the following is a rust cement for water and steam pipes:—Make a stiff paste with two parts sal-ammoniac, thirty-five parts iron borings, one part sulphur, and water, and drive it into the joint with a chisel; or, to two parts sal-ammoniac and one part flowers of sulphur, add sixty parts of iron chips, and mix the whole with water to which one-sixth part vinegar or a little sulphuric acid is added. Another cement is made by mixing 100 parts of bright iron filings or fine chips or borings with one part powdered sal-ammoniac, and moistening with urine; when thus prepared, force it into the joint. It will prove serviceable under the action of fire. All the above parts are by weight.

Excavation of a Tumulus in Scotland.—An ancient tumulus, known as the "Gask Hill," situated immediately to the south of the village of the Collessie, was opened a few days ago by workmen under the direction of Mr. Anderson, curator of the Antiquarian Museum, Edinburgh. The tumulus, which is of an irregularly ovoid shape, measures about 120 ft. in its longer diameter, from north to south, and nearly 100 ft. from east to west, and its centre rises fully 12 ft. above the level of the ground. Openings were made at the south and north extremities, and carried inwards towards the centre, but owing to the great mass of material to be removed, only about a fourth of the work was accomplished.

Exhibition of Engravings in Brussels. On the 1st inst. the King and Queen of the Belgians opened the Exhibition of Etchings at the Brussels Artistic and Literary Club. Their Majesties were received by M. Vervoost, president, and the committee of the club, and by the committee of the International Society of Aquafortists. Sir Savile Lumley, English Minister, and president of the society, himself an amateur in the art, and an exhibitor, addressed their Majesties in a brief speech. Several French artists have exhibited, as well as those from Holland and Germany, and it is said that our countryman, Mr. Seymour Haden, is the lion of the Exhibition. The engravings are more than 500 in number.

Mitford Church.—On Sunday, the 27th of August, a large Munich window was unveiled to a crowded congregation in the above fine old church. The window is a double lancet, containing in one light the subject of the "Holy Women at the Tomb"; and in the other that of our Lord's "Ascension." The window (the gift of Mrs. Wm. Mitford) is in memory of her husband, Captain Wm. Mitford, late of H.M.'s 73rd Regiment, and of Colonel W. Vernon Mitford. Amongst the group of the Apostles in the "Ascension" has been introduced the portrait of Captain Wm. Mitford. Those most interested in the work think it reflects great credit on Messrs. Mayer, to whom the design and execution were entrusted.

The New York Court-house that Kills.—At the recent meeting of the members of the New York Bar in the Superior Court, to take action on the death of the late Chief Justice Monell, the Hon. Noah Davis, of the Supreme Court, who presided, said he thought that Chief Justice Monell owed his death to "discharging his duties (under circumstances which no judge should be called upon to endure) in this building,—in an air unfit for human beings, and certain, in a longer or shorter time, to produce fatal results. We call this the providence of God, but it is the improvidence of man; and many have experienced the evil effects of the malaria which lurks in the walls of the building."

A Tribute to the Home Secretary.—On the 31st ult. the Town Council of Glasgow resolved to confer the freedom of the city on Mr. Cross, the Home Secretary, in recognition of his labours in dealing with important and delicate questions affecting the rights, duties, and obligations of labour, the sanitary conditions of towns, and the re-organisation of various departments of public administration, with the view of securing greater economy and efficiency.

Trade Unions and Friendly Societies.—By the recent Act on trade unions (39 and 40 Vic., c. 22) trade unions, whether registered or not, which insure or pay money on the death of a child under ten years of age, are brought within the provisions of section 28 of the Friendly Societies' Act, 1875.

Halifax Congress of the Yorkshire Archæological Association.—The excellent programme prepared for this Congress by the hon. secs., to which we have already alluded, contained a full schedule of the masons' marks to be found on Halifax Church. Arabic numerals on an accompanying plan of the church show where the various marks occur. We shall be glad to find this example followed. We shall give a report of the proceedings next week.

The Wrexham Exhibition and the Working Classes.—It is satisfactory (says a Liverpool paper) to learn that the efforts of the promoters of this exhibition are being heartily seconded by the public. Nearly 20,000 persons passed through the turnstiles last week, and there is a steady increase of visitors daily. The railway companies have consented to lower their fares to visitors to the exhibition. Many large employers of labour are taking advantage of this to send their workmen.

Great Fire in Canada.—A telegram from Montreal states that a great fire broke out on Sunday last at St. Hyacinthe. Commencing in the west end, it spread through and completely destroyed the main and three parallel streets of the town. The post-office, the market, the court-house, three banks, several factories, and eighty stores, together with 500 other buildings, are entirely burned down. A hundred families are rendered homeless by the catastrophe. The loss is roughly estimated at $2,000,000.

The Viaduct, Carlisle.—Rapid progress is being made in the construction of this viaduct. The retaining-walls of the incline to James-street are now up; those of the main structure are far advanced; and the pulling down of the long-debated property of Messrs. Mounsey, on Bush Brow, has prepared the way for active operations on the east side of the railway. Messrs. Ward & Co., the contractors, are simultaneously pushing on vigorously with the construction of the new Nelson Bridge.

Sheerness.—The foundation-stone of the first elementary school to be built by the Minster-in-Sheppey School Board was laid on the 23rd ult. in the village of Minster, by the Hon. Mrs. Foley. This school is the smallest of three that are about to be erected from the designs and under the superintendence of the Board's architect, Mr. E. H. Lingen Barker, to accommodate 1,000 children, the other two being situated in Sheerness.

Who is Responsible?—The *Athenæum* tells a striking story, which, if true, shows that the Houses of Parliament at Westminster are in irresponsible hands. It relates how that an eminent artist, from whom the Houses of Parliament have already received considerable benefits, was just in time, the other day, to procure the suspension, if not total stoppage, of operations likely to terminate in painting the whole exterior of the edifice!

Poplar Wood alleged to be Fireproof.—The *Garden* says:—Many despise poplar as a timber, but it has one golden property—it will not burn. Some years ago a factory at Nottingham took fire on the second floor, and burned to the top furiously, but not downward; although the floors lay a yard thick with hot clinkers and melted machinery, yet it did not get downwards, because the floors were of poplar.

Pin Factories in the United States.—The old, though perhaps bootless, question,—"Where do all the pins go to?" is recalled by the statement in an American paper that there are now eight pin factories in the United States, which make 47,000,000 pins daily. In addition to these, the importation of pins reaches 25,000,000 daily. As these are sold, it is safe to say that 72,000,000 pins are lost daily, or 50,000 every minute!

Free Public Library for Plymouth.—On the 30th ult. the Earl of Morley presided at the inauguration of a free public library, said to be the first opened in the district. A commodious suite of rooms, which formerly constituted the Guildhall of the town, has been devoted to the purpose, and a nucleus of 5,000 volumes collected.

Steam Locomotion for Tramways.—The works belonging to the Tramcar Construction Company at Greenwich have recently been purchased by Messrs. Merryweather & Sons, the fire-engine makers, as a branch establishment for the production of their patent steam tramway locomotives, which, we are informed, they are turning out at the rate of three per week.